

**WG5 Business Plan and Convener's Report  
to the ISO/IEC JTC1/SC22 1998 Plenary**

**PERIOD COVERED BY THIS REPORT:** August 1997 – July 1998

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**1 MANAGEMENT SUMMARY**

**1.1 JTC1/SC22/WG5 Statement of Scope**

The development and maintenance of ISO/IEC Fortran programming language standards.

**1.2 Project Report**

**1.2.1 Completed Projects**

22.02.01.01 Programming Language Fortran – Part 1: Base Language

The revised Standard (ISO/IEC 1539-1) was published in December 1997.

22.02.01.02 Type 2 TR on Floating Point Exception Handling in Fortran

The DTR ballot ended in March 1998 with a unanimous vote of approval. A handful of (mainly editorial) comments were made, and these have been addressed. The final text of the Technical Report (ISO/IEC TR 15580) was submitted to ITTF for publication in June 1998.

22.02.01.04 Type 2 TR on Enhanced Data Type Facilities in Fortran

The DTR ballot ended in March 1998 with a unanimous vote of approval. Some technical comments were made, and these have been addressed. The final text of the Technical Report (ISO/IEC TR 15581) was submitted to ITTF for publication in June 1998.

### **1.2.2 Projects Underway**

#### 22.02.02 Programming Language Fortran – Part 2: Varying length character strings

There have been some slight delays in the completion of this project as a result of the change in the terms of reference approved at the 1997 SC22 Plenary, when work on the normative part of the Standard was authorised in addition to the originally planned work on the non-normative annex. It has now been decided to completely remove the non-normative annex containing a sample Fortran 95 module which can be used to implement the provisions of the Standard, and to make this available as a public domain module. Final editorial changes are currently being carried out to the Standard itself, and it is expected that the document will be ready for submission for CD Registration and Final CD ballots later this year.

#### 22.02.03 Programming Language Fortran – Part 3: Conditional Compilation

The Final CD ballot ended in March 1998 with unanimous approval and no comments. The document, revised in accordance with certain editorial comments submitted by ITTF, was submitted for DIS balloting in June 1998.

### **1.2.3 Cancelled Projects**

#### 22.02.01.03 Type 2 TR on Interoperability between Fortran and C

This proved more complex than anticipated. The PDTR ballot ended on September 11, 1997, with overall approval, but was accompanied by a substantial number of technical comments, with the result that WG5 decided that it would not be possible to complete the TR in time for any experience of its use to be used as input for the development of Fortran 2000 in accordance with WG5's self-imposed rules regarding such TRs. Accordingly, WG5 decided to move this work item directly to the revision of Fortran 95 as a high priority requirement for Fortran 2000, and to abandon the production of the Technical Report.

### **1.2.4 Cooperation and Competition**

WG5 cooperates closely with the ANSI NCITS/J3 Fortran Technical Committee, to whom it has delegated the technical development of Fortran 2000 as well as the maintenance of Fortran 95 (ISO/IEC 1539-1:1997). There is also close contact with the industry-driven High Performance Fortran Consortium, with several members of the HPF Consortium also being members of J3 and/or WG5. Many of those responsible for the development of commercial Fortran compilers are members of J3 and/or WG5.

Other important liaisons are those with IFIP WG2.5 (Numerical Software) and ISO/IEC JTC1/SC22/WG20 (Internationalization).

There are no competitive activities.

## **2 PERIOD REVIEW**

### **2.1 Market Requirements**

Fortran is still the language of choice for the majority of scientific and technological programming. The long delay between the release of Fortran 77 and the availability of Fortran 90 compilers, at a time when other languages, such as C and C++, were evolving rapidly, had a significant impact on the use of Fortran, but there are now clear signs that the facilities available in Fortran 90 and Fortran 95 are causing a growing number of scientific and technological users to move towards these latest versions of Fortran. In parallel with this, the availability of two commercial subsets designed primarily for educational use (F from Imagine, Inc and Elf90 from Lahey Computing Systems, Inc) is generating increased interest in Fortran from the higher education sector.

Almost all major Fortran compiler vendors are represented either on WG5 or its Primary Development Body, NCITS/J3, as are many of the major research establishments which rely on Fortran for their numerical computing. There is also an active email list for users of Fortran 90 which provides valuable feedback from users. All these diverse sources are used to guide the development of the language, both through revisions to the base language Standard, and through other related standards and technical reports.

### **2.2 Achievements**

The latest revision of the base Fortran Standard has been published, while two Technical Reports are awaiting publication.

Work on Part 3 of the Standard has been completed, and the new Standard is expected to be published before the end of 1998, following its 2-month DIS ballot.

### **2.3 Resources**

As elsewhere in the Standardization world, it is becoming increasingly difficult to persuade employers to provide the necessary funding for Standards activity. WG5 delegates most of the technical work involved in developing Standards and Technical Reports to “development bodies” which are either based on a national Fortran committee, as in the case of NCITS/J3 – the primary development body responsible for development of the revision to the base language standard and its subsequent maintenance, or consist of a (small) multinational group under the leadership of the relevant project editor. WG5 currently has five such active development bodies, including the primary development body.

WG5 itself carries out much of its discussions via email, with an annual meeting during the summer, and occasional other meetings at critical stages in the development of the base language standard. The meeting in June 1998 was attended by fifteen members, including the Convenor, representing five countries; two other countries who had expected to be represented were unable to attend at the last minute.

### **3 FOCUS FOR NEXT WORK PERIOD**

#### **3.1 Deliverables**

It is anticipated that the new Part 3 of the Standard (Conditional Compilation) will be approved by late summer of 1998, and that it will be published by the end of the year.

It is expected that the revision of Part 2 of the Standard (Varying length character strings) will be submitted for its Final CD ballot during the first half of the next year, and that it will be submitted for its DIS ballot before the end of the year.

#### **3.2 Strategies**

WG5 operates under a strategic plan described in WG5 Standing Document 4, which is unchanged from that annexed to last year's Report as WG5 N1287. In particular, the revision of the base Standard, IS 1539-1, is delegated to ANSI NCITS/J3 operating as WG5's Primary Development Body, while the other projects for which WG5 is responsible are handled by other Development Bodies which liaise with the Primary Development Body as required.

##### **3.2.1 Risks**

As far as possible, WG5 tries to anticipate technical comments during international ballots by holding informal ballots of its members before any documents are submitted for ballot. Nevertheless, unexpected technical comments can always delay the planned schedule.

##### **3.2.2 Opportunities**

WG5 has made extensive use of email for over a decade to speed up technical development. Since 1995 most documents have been distributed via an official file server in the UK, with two mirror sites in the USA; all documents have been distributed in this way since 1997. A web site is also used to provide static and non-technical information.

In addition to speeding up the distribution of documents, the use of electronic distribution and communication systems also provides many other benefits, such as the ability to rapidly carry out informal ballots of the members for various reasons.

#### **3.3 Work Program Priorities**

Publication of Part 3 of the Standard (Conditional Compilation) and the progression of the revision of Part 2 (Varying Length Strings) to approval of the Final CD are WG5's two priority activities this year.

WG5 members will also monitor, and/or participate in, the work of WG5's Primary Development Body as it moves into the final stages of the development of the Working Draft of the revision of the base Fortran language Standard, ISO/IEC 1539-1:1997.

## **4 OTHER ITEMS**

### **4.1 Action Requested at the Forthcoming SC22 Plenary**

#### **4.1.1 Change of Project Editor for Project 22.02.02**

WG5 requests SC22 to appoint John Reid (UK) as Project Editor for the revision of Part 2 of the Fortran Standard (ISO/IEC 1539-2:1994) in place of Lawrie Schonfelder (UK), who was the Project Editor for the original Standard.

#### **4.1.2 Simultaneous CD Registration and Final CD Approval Ballots for Revision of ISO/IEC IS 1539-2:1994 (Project 22.02.02)**

WG5 currently has approval to carry out simultaneous registration and approval ballots for the forthcoming CD of the revised Part 2 of the Fortran Standard (ISO/IEC IS 1539-2). In view of the non-controversial nature of the revision, and the fact that the changes have been widely discussed within the Fortran community, WG5 requests to approval of SC22 to proceed directly to a Final CD ballot for this project.

#### **4.1.3 Extension of Schedule for Project 22.02.02**

The revision of ISO/IEC 1539-2:1994 was approved in 1995. However, the scope of that revision was changed in 1997 to extend the revision from a non-normative annexe, as approved in 1995, to include revisions to the normative parts of the Standard. It is expected that the document will be submitted for its first (and Final) CD ballot towards the end of 1998 or, at the latest, in very early 1999. WG5, therefore, requests SC22 to authorise an extension of one year from that originally approved in 1995.

#### **4.1.4 Cancellation of Project 22.02.01.03**

In view of the fact that WG5 has determined that the work involved in this project (Interoperability between Fortran and C) will now be most effectively carried out as part of the current revision of the base Fortran language Standard, WG5 requests SC22 to authorise the cancellation of project 22.02.01.03, and to formally record its thanks to the Project Editor, Michael Hennecke (Germany), for his work on the project, which forms the basis of the work being carried out by the primary development body in this area.

#### **4.1.5 Appreciation of Jerrold Wagener**

WG5 requests SC22 to endorse WG5's appreciation of Jerrold (Jerry) Wagener's contribution to the Standardization of Fortran over a period of more than 20 years since the first meeting of the Fortran Experts' Group in 1978, both through his many and invaluable contributions to WG5, where he had never missed a meeting from 1978 until his retirement from Standards activities earlier this year, and to WG5's Primary Development Body, NCITS/J3, where he had served as Chair or Vice-Chair for almost fifteen years prior to his retirement.

#### **4.2 Recent Meetings**

1998/6/8-12 Trollhättan, Sweden

#### **4.3 Future Meetings**

(Note that WG5 normally meets annually, with extra meetings being held as/when necessary to process ballot comments or other high priority activities which do not accord with the regular meeting schedule. WG5's Primary Development Body, ANSI NCITS/J3, meets quarterly. Other work is carried out via email.)

1999/6/14-18	Cadarache, France
2000/summer	Finland
2001/spring	USA (CD ballot resolution)
2001/summer	UK
2002/spring	tbd (FCD ballot resolution)