

Support for Fortran Standards Development - Report September 2016

Introduction

The development of most major programming languages is now undertaken by standards committees. Fortran is still the language of choice for much scientific, engineering, and economic programming, particularly for very large programs that have evolved over many years. BCS has supported the UK contribution to the development of international Fortran standards since 2003. The initial case from 2002 is at www.fortran.bcs.org/2003/devrep03.htm and subsequent annual reports are linked from www.fortran.bcs.org/standards/stanhome.php.

UK members participate in the ISO Fortran committee (SC22/WG5), the BSI Programming Language committee (IST/5), the ISO Programming Languages Committee (SC22) and the US Fortran committee (PL22.3 aka J3). In addition to attendance at BSI and international meetings, to the costs of which BCS has contributed, much work is of course undertaken by email. The BSI Fortran panel and the BCS Fortran Specialist Group make every effort to represent the UK as a whole at international meetings.

Activity 2015-2016

The current version of the full Fortran language standard, known informally as Fortran 2008, was published in October 2010. Determining the content of the next revision started in 2012-2013 and continued up to the summer of 2015. Thirty-four individual enhancements were accepted and it was agreed to incorporate the contents of TS 29113:2012 (Technical Specification on Further Interoperability of Fortran with C) and TS 18508:2015 (Technical Specification on Additional Parallel Features in Fortran). In the past year the principal work has been to ensure that these changes have been incorporated into the standard correctly and that they do not give rise to any inconsistencies or incompatibilities (the standard comprises 621 pages). The document will go forward for balloting by national member bodies of SC22 during the next year. The scheduled publication date of the revised standard is July 2018.

Work has also continued on processing defect reports (ISO terminology) on the standard, resulting in publication of a fourth Technical Corrigendum for Fortran 2008 in July 2016.

Future Development of the Fortran Standard

It is proposed to start planning a further revision next year, to determine the issues that need attention during the following year, and to make a final choice of the technical content in the summer of 2020.

TR 24772-8 (Guidance to Avoiding Vulnerabilities in Programming Languages through Language Selection and Use, Part 8 Fortran)

UK members have participated in developing the Fortran part of this Technical Report but there has again been little progress during the past year. WG5 is giving this work low priority while WG23, the relevant working group, continues to specify new vulnerabilities.

Conclusion

The UK continues to play a major role in the development of the Fortran language. It provides the convenor of WG5, the project editor, the webmaster and the email administrator, plus (usually, but appointed on an ad hoc basis) the minutes secretary and the editor of the Technical Corrigenda. At the most recent WG5 meeting in Boulder, Colorado, five of the 18 participants were from the UK; of the five, one was wholly supported by BCS and two were partly supported.

All Fortran development papers are open to all interested worldwide; minutes of the most recent WG5 meeting are in WG5-N2109 and the resolutions are in WG5-N2108. WG5 documents are available via its document register at <http://bit.ly/1Kv7Etg>. J3 papers are obtainable from <http://www.j3-fortran.org/>.

The Group is extremely grateful for the continuing BCS contribution to this project.

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