

Support for Fortran Standards Development - Report September 2015

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 2014-2015

The latest revision of the full Fortran language standard, informally known as Fortran 2008, was published in October 2010. Work on determining the content of the next revision started in 2012-2013 and continued up to this summer. However the principal priority during the past year was still the development of the Technical Specification on Additional Parallel Features in Fortran.

Technical Specification on Additional Parallel Features in Fortran

The content of the report to extend the parallel processing facilities in Fortran remained controversial but significant progress was made. The document was issued for SC22 ballot as a Proposed Draft Technical Specification in May, comments derived from the ballot have been acted upon and the document has been submitted to ISO to be adopted as a Technical Specification. The anticipated publication date is December 2015. UK members have played a major part in this development.

Future Development of the Fortran Standard

It had been decided (ref the report for 2011-2012) that no extensions should be considered for the next revision but that it should incorporate (a) the technical corrigenda, (b) the two technical specifications (on further interoperability with C - published in November 2012 - and on additional parallel facilities), (c) editorial improvements and (d) removal of existing deficiencies and irregularities. Given that the requirement that the specification of the revision be completed this year, the UK group put forward only two minor proposals for consideration at the 2015 WG5 meeting. The details are in document WG5-N2059.

The final decisions on the content of the revision were duly made. Of the proposals submitted by member countries since 2013, 34, or just over half, were accepted; of the 34, 20 were from the UK.

Fortran Annex for TR 24772 (Guidance to Avoiding Vulnerabilities in Programming Languages through Language Selection and Use)

UK members have participated in developing the Fortran-specific annex for this Technical Report but there has been little progress during the past year other than identifying some new vulnerabilities mainly relating to parallelism. It has now been decided that the language-specific annexes be issued as separate documents, which should help bring forward publication.

WG5 meeting in 2015

Participating countries take turns to host the annual WG5 meeting and it was the turn of the UK in 2015. The Membership Board kindly agreed to the use of the facilities in Southampton Street. These were much appreciated by participants.

Conclusion

The UK continues to play a major role in the development of the Fortran language as will be seen from the success of its proposals above. The convenor of WG5, the project editor, the webmaster and the email administrator are all from the UK, as are (usually, but appointed annually) the minutes secretary and the editor of the Technical Corrigenda.

All Fortran development papers are open to all interested worldwide; minutes of the most recent WG5 meeting are in WG5-N2068 and the resolutions are in WG5-N2077. 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 support of BCS.

David Muxworthy
BSI Fortran Convenor
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