

ISO/IEC JTC1/SC22/WG5 N1199

To: WG5
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Date: Wed, 10 Jul 1996 01:24:28 -0400
Message-ID: <960710012427_431009178@emout09.mail.aol.com>
To: x3j3@ncsa.uiuc.edu
Subject: (x3j3.1996-198) WG-5 Strategic Plan

Dear members of X3J3:

During my attendance at the May meeting it was apparent that there was considerable concern that the current WG5 strategic plan was not working.

After giving it some thought, I have decided that comments from an outsider might be useful, particularly if they are raised before the next WG5 meeting.

During the meeting the following aspects of the strategic plan raised concern:

1. The mismatch between WG5's desire to delete features and the vendor's determination to maintain them means that one nominal aspect of the language will be meaningless in the immediate future.

2. The use of technical reports to encourage the trial use of new features of the language before the completion of the full standard was not working as well as WG5 had expected, i.e., the original expectation had been that reports on floating point exception handling, derived type extensions, and interoperability with C, would be essentially completed in eighteen months.

For various reasons the derived type extensions report was soon split into two parts, one on extensions of allocatable arrays, the other on parametrized types. After about one year of effort it is unlikely that all four reports will be completed on time. In particular, it was apparent that interfacing to C code was nowhere near complete, and considerable concern was raised about the semantics of several aspects of the parametrized types proposal.

In addition, the semantics of several aspects of the floating point exception handling proposal has changed recently from what was proposed before the meeting, and I suspect that the changes will have to be reviewed carefully before they are accepted. Therefore completion of the reports on schedule appears to be

- a. allocatable extensions: almost certain
- b. floating point exceptions: likely
- c. parametrized derived types: uncertain
- d. interoperability with C: unlikely

3. The Fortran 95 draft was completed behind schedule even after deleting some desired features from its requirements.

4. The requirements for Fortran 2000 have grown tremendously. It appears to be highly unlikely that the majority of current requirements can be met in the nominal five year schedule with current resources, but it has proven difficult to achieve a consensus on priorities. There seemed to be a consensus that this lack of priorities is partly due to many members of WG5, the body that nominally sets the direction of work, not having detailed involvement in the work.

After noting the above I have identified additional aspects of concern

5. The large size of the language is having several negative consequences: it is difficult for new vendors to enter the market, compiler costs are significantly larger for F90 than they were for F77, and incorporating new features into the language becomes more difficult. But, as noted in aspect one, WG5's attempt to delete features is not meeting commercial acceptance.

Further, WG's set of deleted features are too small to have a significant effect on the size problems of the language.

6. In partial response to problem five, two incompatible subsets of F90 have appeared on the market, Lahey's ELF and Imaginel's F, both directed towards the educational market. This has the potential of creating undesirable confusion among Fortran's user community.

7. There is currently no official means of determining whether a compiler satisfies the F90 standard. The NIST compiler suite for F77 had numerous limitations, but a poor benchmark is better than none.

8. Little preparatory work has been done on some of the more difficult of the proposed extensions, OOF in particular.

9. The standard's cost is in some ways self defeating, it doesn't fund the development of the standard directly (although ANSI and ISO do provide some support) and makes it difficult for non-vendors to justify the purchase of the standard. While ANSI and ISO normally charge for their standards that is not true for Ada. What have they done that X3J3/WG5 have not done?

As I see it the strategic plan has a number of options. Following the standard method of listing all options I have recognized (not all of them mutually exclusive or practical):

1. Continue with the current plan.
2. Give up on all attempts to develop a standard subsequent to F95.
3. Greatly reduce the requirements for F2000.
4. Extend the development period well beyond five years.
5. Concentrate on a greatly reduced subset of F90/95.
6. Develop a new language with very similar syntax, semantics, and argument passing mechanisms to F95, but with none of the optimization problems and with more advanced features.
7. Do extensive recruiting to increase the size of the body involved in development. (Get all the attendees of HPF involved in X3J3 or WG5)
8. Find a means to define a standard test suite, as has Ada.

9. Contract out some or all of the development work to a company or individual. This appears to have been done for Ada 83 and 95 and for the Object Oriented Cobal draft standards.
10. Find additional funding for development work, possible sources include
 - A. Governmental, particularly US, e.g., DOE, NIST, ARPA, NSF, NASA, (DoD, but they funded Ada), but perhaps also European or Japanese.
 - B. Commercial (the standard test suite, an annotated reference manual, special purpose software, getting uninformed vendors involved?)
 - C. Private (foundations etc.)
11. Work on LPF.
12. Start a new consortium to get the work dissociated from ANSI/ISO.
13. Start work on the next Ada or C++ standards.

I hope my comments are appropriate and useful. If anyone want to send their comments to me on the above, please note that I am not on the x3j3 main mailing list

Good luck in Germany.