X3J3 Responses to WG5 Tokyo Resolutions

<u>T4. Content of Fortran 95</u>
X3J3 concurs with this resolution and will submit a document consistent with it soon after X3J3 meeting #133 (1995 April 24-28).

<u>T5. Technical Corrigendum 3 (TC3)</u>
X3J3 concurs with this resolution and will incorporate the edits associated with TC1, TC2, and TC3 into the Fortran 95 DIS.

<u>T6. Electronic Distribution of Documents</u>
X3J3 supports this resolution.

<u>T7. Development of Fortran beyond Fortran 95</u>
X3J3 is apprehensive about the TR model being used to add functionality to the Fortran standard. Nevertheless, X3J3 will work with the development bodies to produce technically complete and accurate TRs. The process that X3J3 will use and the concerns raised by the TR process are detailed in X3J3/95-128.

<u>T8. Handling Floating Point Exceptions</u>
Subject to the general comments in the response to resolution T7, X3J3 concurs with the need for this functionality and agrees with the direction proposed by ISO/IEC JTC1/SC22/WG5 N1117. X3J3 appoints the following X3J3 members to the TR development body: K. Bierman, R. Hendrickson, J. Himer, K. Hirchert, T. Terpstra

<u>T9. Interoperability with C</u>
Subject to the general comments in the response to resolution T7, X3J3 concurs with the need for this functionality. X3J3 recommend that the development body concentrate on data interoperability and seriously consider the approach to interoperability expressed in ISO/IEC JTC1/SC22/WG5 N1096 and X3J3/95-114. X3J3 appoints the following X3J3 members to the TR development body: G. Barber, H. Zongaro; "observers": K. Bierman, R. Maine

<u>T10. Data Type Enhancements</u>
Subject to the general comments in the response to resolution T7, X3J3 concurs with the need for allocatable components. X3J3 does not believe that parameterized derived types meet the criteria set forth in ISO/IEC JTC1/SC22/WG5 N1111. X3J3 strongly requests that WG5 remove parameterized derived types from this TR. X3J3 appoints the following X3J3 members to the TR development body: D. Epstein, J. Martin; "observer": K. Hirchert

T11. Standard Preprocessor for Fortran
X3J3 concurs with this resolution. Further, the US will provide a specification of the requirements and nominates David Epstein as project editor.

T12. Varying Length Character Strings ...
X3J3 concurs with this resolution but notes that a US suggested requirement for Fortran 2000 is an intrinsic varying length character string data type.

T13. Fortran 2000 Revision
X3J3 concurs with this resolution and intends to submit an updated and refined list of suggested Fortran 2000 requirements from the US.

[Note - this is identical to X3J3/95-005r1 produced in April (Maui), with the following enhancements made in August (Breckenridge): "observers" added to T9 and T10, and second sentence added to T11.]

Subject: **X3J3 Response to Tokyo Resolution 7**

X3J3 has reviewed the TR processing as proposed by WG5 and, although X3J3 has some concerns about the process and its effect on Fortran 2000, X3J3 believes that establishing close liaison with the TR development bodies will produce both the best technical result for the TR and minimize future integration problems for Fortran 2000.

To ameliorate some of these concerns, X3J3 proposes to collaborate with WG5's TR process as follows:

  -   X3J3 will establish a subgroup for each TR. No more than three members of the X3J3 subgroup will be part of the TR development body. Any X3J3 member may participate in the electronic discussions of the TR development as she/he sees fit.

  -   The X3J3 subgroup will be responsible for keeping X3J3 informed about the progress and content of the TR development and will communicate to the TR editor any editorial or integration concerns that X3J3 may raise.

  -    The X3J3 subgroup will draw on any X3J3 expertise available to ensure the technical accuracy and completeness of the TR.

X3J3 is concerned with the manner in which WG5 decided to use the Type 2 Technical Reports as a mechanism to develop Fortran 2000. In particular, there was no open discussion within the WG5 membership prior to making this important decision -- indeed, most of the membership was not aware of this proposal before the proposal was presented and adopted at a sparsely-attended WG5 meeting. Thus, there was limited consideration of the procedures to develop TRs, the interaction among the TRs, the proliferation of the TRs, and the interaction of the TRs with the Primary Development Body's work on the next revision of the standard. X3J3's concerns are as follows:

  -   WG5 indicates that the TRs are considered as beta tests for language features and implementations, and yet requires the incorporation of the feature into Fortran 2000 without change, except for errors detected. These two concepts are not compatible because the purpose of a beta test is to find errors, better ways to define a feature, or features that are unused or unnecessary. These latter defects may not be corrected with the current procedures. Indeed, there is no possibility of rejecting the TR in Fortran 2000, even in the case that no implementations occur or it is generally agreed that the TR feature is not useful.

  -   WG5 has established three TRs at the Tokyo meeting. The TR model for language development is that each TR is added to Fortran 95, one at a time. X3J3

is assuming that as a TR is created, the TR is required to specify its interaction with existing TRs as well as Fortran 95. After the TRs are defined, X3J3 assumes that the respective development bodies are responsible for maintaining the TRs, including responding to defect reports, particularly as more TRs are added and inconsistencies amongst them are discovered.

  - WG5 document N1111 suggests a small number of new features will be processed as TRs. In this context, particularly because of the interaction with the three major features required by WG5, three is already considered by many to be too large a number. We strongly recommend that any new proposal for a TR be allowed to gather consensus within the Fortran community.

In essence, FORTRAN 77, Fortran 90, and Fortran 95 were created in this incremental manner with documents describing the functionality, syntax, and semantics of a particular collection of features. It turned out in all three cases that the integration of the features was the most time-consuming and difficult aspect of the process, even when the syntax and semantics were permitted to change to allow the features to co-exist seamlessly. The TR process is highly constrained during the process of integration into Fortran 2000, and therefore will not lead to seamless integration of features in Fortran 2000, particularly if there are a large number of TRs. X3J3 assumes that highly desirable extensions to a TR discovered during integration may be included in Fortran 2000.