

MINUTES OF JOINT WG5/X3J3 MEETING LAS VEGAS, FEBRUARY 10 TO 14 1997

ATTENDANCE:

1 invited speaker:

Arnold Winkler

37 delegates:

WG5 Convenor: Miles Ellis

X3J3 Chairman: Jerrold Wagener

Austria: Gerhard Schmitt, David Schmitt

Finland: Petri Mahonen

Germany: Michael Hennecke, Wolfgang Walter, Manuela Zuern

Japan: Masakaza Hayashi, Masayuki Takata

Netherlands: Mattings Van Waveren

UK: Malcolm Cohen, John Cuthbertson, Keng Low, Steve Morgan, David Muxworthy, John Reid

US: Jeanne Adams, Keith Bierman, Richard Bleikamp, Walt Brainerd, Viktor Decyk, Craig Dedo, Dick Hendrickson, Kurt Hirschert, Baker Kearfott, Richard Maine, Jeanne Martin, Loren Meissner, Mallory North, Charles Norton, Larry Rollison, Bob Runyan, Reva Sacks, Van Snyder, Tony Warnock, Stan Whitlock, Henry Zongaro

OPENING REMARKS (Ellis):

Objectives are to establish Fortran 2000 requirements, and to make recommendations as to ongoing projects including Technical Corrigendum 3 and Fortran 95.

OPENING REMARKS (Wagener):

Appointments for the meeting are: North, Librarian; Meissner, Secretary; Drafting Committee (for WG5 resolutions), Muxworthy, Wagener, Ellis; Technical Subgroup Heads/Assistant Heads, Hendrickson/Kearfott (High Performance), Zuern/Cuthbertson (Data), Whitlock/Bleikamp (Miscellaneous).

Objectives are to complete Fortran 2000 requirements; to further develop technical specifications for selected requirements; and to make recommendations concerning WG5 projects on C Interoperability and Conditional Compilation.

Plenary session actions will be based only on recommendations from technical subgroups, except in unusual cases.

AGENDA (Wagener):

Motion to adopt Agenda, WG5/N1234 (Whitlock, Dedo) approved unanimously.

MINUTES OF PREVIOUS MEETINGS (Wagener):

Motion to adopt minutes of WG5 meeting, Dresden July 1996, WG5/N1220 (Ellis, Hennecke) approved unanimously.

Motion to adopt minutes of X3J3 meeting, Las Vegas November 1996, X3J3-96-180 (Maine, Hendrickson) approved unanimously.

REPORT ON OFFICIAL ACTIONS OF SC22 and ITIC (formerly X3) (Ellis):

The rules for final processing of draft standards have been changed slightly. There will be a "final" ballot on the technical committee draft; comments at this stage may result in changes. This will be followed by a single Draft International Standard ballot with no comments. With regard to WG5 documents in progress, the new rules will apply to the Technical Report on C Interoperability and to the Part on Conditional Compilation. Some changes in editorial rules have been forwarded to all WG5 Project Editors.

New work items now require active participation by 5 member bodies; implementation of this rule has created a problem in the case of GKS binding to Fortran 90, as described in a communication from SC24 (X3J3-97-130), which will be the subject of a resolution at this meeting.

NATIONAL ACTIVITY REPORTS (Ellis):

Reports from Germany (WG5/N1249) and US (WG5/N1258) have been submitted in writing.

STATUS OF FORTRAN 2000 REQUIREMENTS (Ellis):

Document X3J3-97-010 lists the current status, and references current documentation for projects that are under way. Electronic subgroups established at Dresden had prepared documents based on documents WG5/N1238, /N1239, and /N1240 for consideration by subgroups at this meeting.

WG5 Technical Reports on Floating Point Exception Handling (WG5/N1231) and Enhanced Derived Type Facilities (WG5/N1230) are the subjects of current letter ballots.

Development groups for WG5 projects on C Interoperability (WG5/1237) and Conditional Compilation (WG5/N1243; see also WG5/N1247 and WG5/N1208) met separately during this week. Technical reports will require integration into Fortran 2000.

Defect management for Fortran 95 will begin after final approval.

Fortran 77 and Fortran 90 will remain as US national standards; some future US action may be taken in this regard.

INTERNATIONALIZATION (Arnold Winkler):

Issues identified by SC20, including defining and handling culturally dependent "locale" information, were described and discussed. WG5 was urged to accommodate internationalization insofar as possible.

SUBGROUP RECOMMENDATIONS (Wagener):

High Performance group requested guidance from the full group concerning Interval arithmetic (WG5/N1252, /N1253); individuals expressed preference as follows: (Required part of Fortran 2000, 7; Optional part of Fortran 2000, 24; Undecided, 5).

Miscellaneous subgroup reported its discussion of WG5/N1240. The subgroup recommended deletion of selected items that had previously been classified as requirements for "Minor Technical Enhancements," and requested guidance from the full group. A majority of the group preferred to delete the following items: Allow MERGE in constant expressions (M.9), Named scratch files (M.10), Specifying default precision (M.12), and More than 7 array dimensions (M.14).

Final actions resulting from other recommendations of High Performance, Data, and Miscellaneous Subgroups are reported below.

SCHEDULE FOR FORTRAN 2000 (Ellis)

The group was requested to express its preference for "Maintain the current schedule, according to which the next Fortran standard would be published in November 2001." Individuals: (18-19); countries (2-5).

The group was requested to express its preference for "Choose a revised planned publication date and schedule the work to fit that date." Individuals: (29-6); countries (6-1).

The group was requested to express its preference for "The revised planned publication date should not be later than November 2003." Individuals: (37-0). "The revised planned publication date should not be later than November 2002." Individuals: (26-11). "The revised planned publication date should not be later than May 2002." Individuals: (7-28). "Confirm that the revised planned publication date should be November 2002." Countries: (6-1).

Anticipating that Interoperability with C would be the subject of a resolution, the group expressed its preference for "Interoperability with C is a Fortran 2000 requirement." Individuals: (31-0). Wagener noted that all current Technical Report projects are Fortran 2000 requirements but are not considered X3J3 work items except for integration.

The following chart summarizes individual preferences for items previously identified by WG5 as requirements, along with those recommended by the Subgroups. Column 1 reflects individual preferences, expressed during Subgroup reports, for giving items further consideration. Column 2 shows individual preferences to categorize items as A (high), B (medium), or C (low) priority. Column 3 refines Column 2 for selected items.

= Feature Name =====	1	2	3
		A- B- C;	A- B- C;
derived type I/O		;17-14- 4;	20-15- ;
procedure pointers		;22-10- 2;	;
inheritance (EXTENDS)	32- 5;	25- 6- 4;	;
polymorphism (OBJECT)		;22- 9- 4;	;
internationalization	34- 1;	16-17- 2;	18-16- ;
parameterized derived types		;14-14- 7;	14-21- ;
interval arithmetic		;11- 8-12;	12-11-13;
constructors/destructors	30- 4;	13-15- 7;	17-17- ;
asynchronous I/O		;14-15- 1;	15-19- ;
VOLATILE attribute	yes	; 7-16- 5;	;
allow public entities of private type	yes	; 4-16-14;	-18-15;
PUBLIC and PRIVATE components	yes	; 2-20-12;	;
stream I/O	21- 6;	6-20-7 ;	;
command line arguments	29- 4;	6-15-12;	-19-13;
access to status error messages	yes	; 5-16-13;	-20-14;
IEEE I/O rounding inquiry intrinsics	yes	; 7-10-13;	-17-17;
user-specified operator precedence	11-16;	3- 9-21;	;
ASSERT statement or construct	yes	; 2- 6-21;	;
pointer association classes	20- 1;	2- 6-20;	;
aliasing type definitions	yes	; 4-13-17;	-11-20;
regularize KIND	yes?	; 0- 4-31;	;
extend ALLOCATE to nonkind	23- 3;	3-13-17;	;
exception handling	21- 9;	9-10-16;	-12-21;
any kind integer in I/O specifiers	28- 5;	3-13-18;	;
internal procedures as actual args	17-14;	7- 9-18;	;
tabs in data	22- 7;	2- 7-25;	;
tabs in source	20-15;	3- 8-22;	;
regularize random seed	19- 5;	8- 8-19;	;
packed LOGICAL	15-15;	5- 4-25;	;
SWAP operator	12-12;	2- 2-31;	;
preconnected unit number inquiry	17-10;	2- 6-26;	;
separate module spec	15- 8;	3-12-19;	;

Country preferences were expressed concerning selected items.

- interval arithmetic (A, 4; B, 1)
- IEEE I/O rounding inquiry intrinsics (B, 4; C, 3)
- parameterized derived types (A, 5; B, 2)
- user-specified operator precedence (B, 4; C, 2)
- internal procedures as actual args (B, 1; C, 4)
- constructors/destructors (A, 3; B, 3)
- asynchronous I/O (A, 5; B, 2)

Individual preferences were expressed concerning selected existing Minor Technical Enhancement requirements:

- M6, extend initialization expressions (27-4)
- M8, liberalize BOZ constants (9-13)
- M9, MERGE in constant expressions (6-18)
- M12, default precision (7-15)
- M13, processor-dependent features list (10-13)
- M15, renaming operators (21-4)
- M16, data type encapsulation (32-0)
- M17, enhanced complex constants (23-2)

Convenor stated that he will expand N1259 (Content of Fortran 2000) to include a more meaningful title for each item, suitable for posting on various Fortran news groups.

SUBGROUP REPORTS (Wagener):

Data subgroup proposed syntax for parameterized derived types. Motion to accept X3J3-97-104r2 (Maine, Cuthbertson) approved (23-2).

Data subgroup reviewed M16, data type encapsulation; see X3J3-97-145. There is a small error in F90 but defect processing has terminated. It can be processed during defect management for Fortran 95, and the corresponding correction can be incorporated into Fortran 2000. If this is done, Fortran 2000 will agree with Fortran 95 but both will be slightly different from Fortran 90. Technically, the defect relates to user-defined assignment of components of a derived type. Straw vote to process as a Fortran 95 defect: (29-0-1).

Data subgroup presented Pointers to Procedures. Motion to accept X3J3-97-147 as syntax (Maine, Snyder); after discussion, motion to table until the X3J3 meeting in May 1997 (Meissner, Kearfott); tabled by unanimous consent.

Miscellaneous subgroup described the effect of "copy in, copy out" semantics on asynchronous I/O. Straw vote, this is the proper direction: (24-0-3).

High Performance recommended that numbers of real type should not be mixed with intervals in an interval expression. Straw vote on this recommendation as described in X3J3-97-143: (26-2-0).

RECONSIDERATION (Ellis):

By request of three countries that had preferred category B for user-specified operator precedence, this item was reconsidered. The reconsidered result was (B, 2; C, 4).

FUTURE MEETINGS (Ellis, Wagener):

Gerhard Schmitt discussed arrangements for the next WG5 meeting in Vienna July 21-25, 1997. Delegates should request further information from Gerhard if they require a less expensive hotel or if they need parking facilities.

Final arrangements for a WG5 meeting in 1998 will be determined at Vienna.

Future X3J3 meetings:

- 12-16 May 1997, Las Vegas
- 11-15 Aug 1997, Breckenridge Colorado
- 10-14 Nov 1997, Las Vegas
- 16-20 Feb 1998, Lafayette Louisiana
- May 1998, Terre Haute Indiana
- Aug 1998, Edinburgh Scotland

RESOLUTIONS (Muxworthy):

Resolutions in document WG5/N1261 were discussed. With regard to LV8, Convenor expressed his intent to carry out the referenced letter ballot by approximately March 31, 1997.

Resolutions LV1 to LV10 were adopted unanimously except as follows: LV2, G Schmitt abstains; LV7, Germany and Walter abstain; LV10, Mahonen and Walter object. Resolutions LV11 and LV12 were adopted by acclamation.

APPENDIX:

The following documents have both WG5/N and X3J3-97- numbers:

(1151=134), (1235=107), (1237=108), (1241=109), (1242=110), (1243=111), (1245=102), (1246=101), (1247=112), (1252=105), (1253=113), (1255=115), (1256=116), (1259=138r1), (1261=1242r2), (1263=139), (1265=135), (1266=137r1), (1267=124), (1268=128), (1269=129r1), (1270=114r2), 1271=126), (1272=131).