



## THE FIRST TWO DECADES

**AN OVERVIEW OF THE ACTIVITIES  
OF THE FORTRAN SPECIALIST GROUP, 1970-1990**

**OHP FOILS FOR A PRESENTATION GIVEN  
AT THE FSG MEETING ON 10 MAY 1990**

FSG Minutes of 6 January 1970

The objectives of the group were formally agreed to be:

- (a) to form a focus in the United Kingdom for work concerned with establishing and maintaining FORTRAN standards.
- (b) to work in association with national and international standardisation bodies.

The following programme of activities was then devised against these objectives:

- (1) Analyse existing ASI standards for Basic FORTRAN and FORTRAN.
- (2) Review current post ASI implementation against (1) in regard to syntax and semantics.
- (3) Collating Users' requirements and proposed solutions.
- (4) Recommendations to standard Bodies as a result of (1), (2) and (3).
- (5) Dissemination of information on FORTRAN standards.

It was agreed that Mr Gatehouse would write to ASI to advise them that a BCS FORTRAN specialist group is being formed and to ask, in particular, for communication on documentation and information on standardisation practices.

## **Early FSG Working Parties**

### **January 1970**

**Analyse existing standards  
Comparison of existing compilers**

**Extension to Fortran**

**Ian Pyle  
Brian Shearing and  
David Muxworthy  
John Gatehouse**

### **April 1970**

**Extensions to ASI Fortran IV  
Adaptation to conversational use  
Fortran on small machines**

**Brian Shearing  
Peter Bradly  
Mike Garside**

### **April 1971**

**Free format  
Mini computers  
Diagnostics  
Extensions**

**David Marwick  
Mike Garside  
Paul Samet  
Brian Shearing**

### **1975**

**FORTREV review**

**Colin Day**

### **April 1976**

**Preprocessors  
Group Promotion & Information**

**John Murchland  
Alan Clarke**

### **December 1976**

**Review Codasyl FDBMLC JOD**

**Geoff Stacey**

First page of the report of the Extensions Working Party, 1970

THE NEXT STANDARD FORTRAN

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First information available to FSG on X3J3 plans for revising Fortran 66

Ideas for Consideration as Extensions to Standard FORTRAN -- 8/71

No-St Extension or Revision Idea

- 1-1 Mixed realinteger arithmetic
- 2-A Apostrophe as Hollerith delimiter
- 3-A Multiple replacement assignment statement
- 4-1 Multiple entry subprograms
- 5-3 Specify a statement delimiter character; allow more than one statement per line
- 6-1 Have Hollerith or character data type; allow Hollerith constants in assignment and IF statements.
- 7-2 More than three dimensions
- 8-2 Nonstandard return statement
- 9-2 Reread or DECODE
- 10-2 ENCODE or equivalent
- 11-2 Automatic typing of function names, i.e., type of argument determines which function is actually used.
- 12-5 Data in type-statements
- 13-1 Implicit statement
- 14-N Implied multiplication after a right parenthesis
- 15 Logical masking statements
- 16-2 Program statement to identify main programs
- 17-3 Special format descriptor for vertical space control
- 18-2 Error detection on reading.
- 19-A End file detection on reading.
- 20 Generalization of subscript expressions.
- 21-3 Namelist statement
- 22-3 Internal subprograms
- 23-2 Free format input data, e.g., use a comma as field delimiter
- 24-N Names longer than six characters
- 25 ignore trailing blanks in input data
- 26-N Allow Hollerith information in output lists without associated format field descriptor
- 27-2 Implied Do loop in data statement
- 28-2 Array name without subscript in data statement
- 29-2 Group successive exponentiations right to left
- 30-1 Expand basic external function list
- 31 Add some basic subroutine names
- 32 Generalize DO statement, i.e., allow expressions with zero and negative values
- 33-A Allow variable format statement labels in I/O statements, e.g., allow integer variable name that has been assigned a statement label 'value' in an assign statement
- 34 Allow more precise precision requirements in type statements
- 35 Allow additional format field descriptors, e.g., R and T
- 36-3 Define standard input data sentinel and make available number of numbers and/or number of lines read

Status Code: A-approved, N-not recommended,  
1-Must be in Std., 2-Should be in Std., 3-Recommended,  
4-Of some value, 5-Of trivial value.

*[plus 3 more pages, 150 items in all]*

FSG Minutes of 5 April 1976

**4. Revision of objectives**

**Following further discussion, the wording of the proposed revised objectives now becomes "To undertake activities associated with any aspects of Fortran". It is intended to present this for approval at the next Specialist Groups meeting.**

### 3.3 ISO TC97/SC5

Brian Meek reported about this meeting.

This group covers all programming languages for ISO and had to discuss more than Fortran. An ad hoc committee was set up to discuss Fortran. This consisted of 15 members, including 6 from X3J3.

N397 (X3J3/90) as amended by N410(X3J3/97) was considered as Fortran 77 for standardisation and a recommendation was made to the main committee that this be put to a letter ballot for acceptance as an International Standard.

Discussion on Fortran 82 plans followed and the following 'rough' schedule was given:

1978 - discussion of philosophy of new revision  
1979 - discussion of particular proposals  
1980 - 1982 writing of the new standard, draft publication  
and comment period.

None of these divisions are fixed and the first two items could overlap. Comment from outside the U.S.A. would, be welcome at any time.

There was some discussion on the form of the new standard, one idea was to have a base language (perhaps Fortran 77) with add on modules to cover such items as real time applications, DBMS facilities, etc.

### Working Party Reports

There were no working party reports.

### Other Recent Fortran Events

#### 5.1 Implementation Developments

K. Normington reported that Lanchester's Fortran compiler now had write list expressions as per Fortran 77

#### 5.2 Fortran Publications

**3. Report from X3J3**

Mr. A. Clarke reported on the latest meeting of X3J3 held in Boston USA in October, at which he and Mr. A. Walter were present as observers. The following timetable is being attempted:

1979	Oct.	Initial Interface proposal by Subgroup
1980	Jan.	Technical Article an Interface Solution
	Mar.	Technical Article on Core
	May	Language itself in place
	July	Final proposals for Core
	Oct.	Begin document preparation
1981	Jan.	Final proposals for modules (including Data Base)
	Mar.	Proposals with text
	May	Final form of Core - plus - modules
	July	Last meeting for proposals
	Oct.	Edit and cross-check document
1982	Jan.	Document in final form



## **Public Presentations**

<b>1971</b>	<b>Two-day Workshop</b>	<b>Edinburgh</b>
<b>1972</b>	<b>High-Level Language Conference</b>	<b>York</b>
<b>1973</b>	<b>Datafair 73</b>	<b>Nottingham</b>
<b>1975</b>	<b>Datafair 75</b>	<b>London</b>
<b>1977</b>	<b>Datafair 77</b>	<b>London</b>
<b>1978</b>	<b>Fortran Forum</b>	<b>London</b>
<b>1981</b>	<b>Fortran Forums</b>	<b>London and Edinburgh</b>
<b>1985</b>	<b>Fortran Forum</b>	<b>London</b>
<b>1987</b>	<b>Fortran Forum</b>	<b>London</b>
<b>1989</b>	<b>Fortran Forums</b>	<b>London and Edinburgh</b>

## **Ordinary Meetings outside London**

<b>Feb 1980</b>	<b>Edinburgh</b>
<b>Nov 1981</b>	<b>Salford</b>
<b>Oct 1986</b>	<b>Reading</b>
<b>Jul 1987</b>	<b>Coventry</b>
<b>Apr 1989</b>	<b>Oxford</b>

## **Presentations at FSG meetings**

**1975**

**ICL 2900 Fortran**

**Compiling Fortran on Minicomputers**

**The SHELTRAN Preprocessor**

**Optimising Compilers for Fortran**

**1976**

**SHORTTRAN - a Conversational Fortran translator**

**Univac Fortran Systems**

**Fortran Systems on DEC PDP8 and PDP11**

**Language Standards and Algorithm Editing**

**Experiences with Fortran and a CODASYL Data Base System**

**Fortran on an International Timesharing Network**

**1977**

**A Large Scale Fortran Project**

**Tools for a Large Subroutine Package**

**The dpANS Fortran**

**Industrial Fortran**

**1978**

**PL/I - a Successor to Fortran**

**Cray-1 Fortran Compiler**

**1979**

**Experience with the CODASYL Fortran interface**

**The ICL DAP**

**Fortran for the GEC 4000 series**

**The Use of Computers in Weather Forecasting**

**1980**

**Experience with programming in Fortran 77**

**Array Processing in Genstat**

**The Real Precision Proposals for Fortran**

**Portability of Fortran 77**

**Fortran Language Requirements**

## **1981**

**Tools for Numeric Software Engineering**  
**Fortran 8X Array Processing**  
**Fortran I, Ratfor and the Software Tools Package**  
**Parallel Processing - What is it?**  
**Portable Fortran 77 Compilers**

## **1982**

**How to make Portable Packages with almost any dialect of Fortran**  
**Proposals for Fortran 8X**  
**Using Standard Fortran - Past, Present and Future**  
**The Cray-1 as a Fortran Engine**

## **1983**

**GKS and Fortran**  
**Array Processing in Fortran 8X**  
**Fortran Optimisation**  
**Derived Data Types in Fortran**

## **1984**

**Toolpack - The Implementation Phase**  
**The ISO Fortran Meeting in Geneva**  
**The ICL Fortran 77 Optimising Compiler**  
**Mixed Fortran and Prolog**

## **1985**

**DEC Fortran and Program Development Aids**  
**The BS Method for Specifying Requirements for Fortran Language Processors**  
**The NCC/FSTS Fortran 77 Compiler Validation Scheme**  
**Using DEC Computers in the field of Dynamic Simulation**

## **1986**

**Floating Point Accuracy and Numerical Precision in Fortran**

**FPV - a floating point validation Package**

**A user's experience with the NAG Floating Point verifier**

**The New ETA Supercomputer**

**ECMWF - Its Role, Computing Activities and Fortran Experiences**

## **1987**

**The Implementation of Toolpack**

**Software Tools**

**The AMT DAP-3**

**Productivity Tools for Fortran Programmers**

**Fortran Compilers on Modestly Parallel Processors**

## **1988**

**The Array Processor Features in Fortran 8X**

**Implementation of Array Processor Extensions in Fortran 8X**

**Ada versus Fortran**

**Experiences with Ada and Fortran**

**The Salford FTN77/386 Compiler**

**The Portable Package Framework**

## **1989**

**Short History of Fortran Preprocessors**

**Automatic Vectorisation**

**FLINT**

**PC Fortran Symposium**

**Expert Systems: general aspects and special properties of statistical front ends**

**The application of Knowledge-based Systems to enhance existing Fortran Software**

## **1990**

**Parallel Processing**

**Fortran Harness for Parallel Computers**

## **FORTRAN SPECIALIST GROUP OFFICERS**

### **Chairman**

**1970-73 John Gatehouse  
1973-75 Brian Shearing  
1975-77 David Muxworthy  
1977-78 Mostyn Lewis  
1978-79 Alan Clarke  
1979-81 Gary Harding  
1981- John Wilson**

### **Secretary**

**1970-71 Marjorie Barritt  
1971-75 David Muxworthy  
1975-77 Alan Clarke  
1977-78 Gary Harding  
1978-79 John Robert-Jones  
1979-81 John Wilson  
1981-83 Dave Vallance  
1983-88 Mike Nunn  
1988- John Young**

### **Vice-Chairman**

**1972-73 Brian Shearing  
1973-75 vacant  
1975-76 Eric Bodger  
1976-77 Mostyn Lewis  
1977-78 David Muxworthy  
1978-79 vacant  
1979-80 David Muxworthy  
1980-81 Alan Clarke  
1981-82 Tim van Raalte  
1982-83 Gary Harding  
1983-84 vacant  
1984-87 Keith Normington  
1987- Chris Lazou**

### **Treasurer**

**1979-80 Anton Walter  
1980-82 John Robert-Jones  
1982-84 Tim van Raalte  
1984-85 Keith Normington  
1985-87 John Dyke  
1987- Miles Ellis**