FORTRAN FORUM 87

A Fortran Forum was held at the Institute of Mechanical Engineers, Birdcage Walk, London SW1 on November 23 1987. It was administered by the Conference Department of BCS on behalf of the Fortran Specialist Group.

This report includes the following:

Excerpt from the booking form (1 page)

A press release reporting on the Forum (1 page)

A summary of the Forum distributed to Fortran Specialist Group members, including agenda, list of participants and delegate's comment sheet (6 pages)

A handout for the 'ISO/BSI Standardisation' presentation (2 pages).

Reports on the Forum giving more detail are included in the minutes of the January 1988 Fortran Specialist Group meeting, at http://www.fortran.bcs.org/1988/min880121.html#para6.

WHAT IS THE FORTRAN FORUM?

Since the publication of the latest Fortran standard (Fortran 77) work has been proceeding on the development of its successor - known informally as Fortran 8x. This work has been carried out by the ANSI X3J3 Committee at the request of the International Standards Organisation. A draft standard has now been agreed and is about to be released for world-wide public review and comment by both ANSI and ISO.
This Forum is being organised by the British Computer Society's Fortran Specialist Group, in conjunction with the British Standards Institute, to provide a focus for UK discussion of the many issues involved in the development of Fortran. The UK currently has six members on the 37-member X313 Committee, and all of them will be involved in presenting the main features of the proposed language and/or in discussing these and any other aspects of Fortran's future.

WHO IS IT FOR?

Anyone with an interest in the use of Fortran and/or its future development is invited to attend. Active users of Fortran and managers of Fortran programming groups are especially welcome.

WHY SHOULD YOU COME?

It is vitally important that as much comment as possible is received from as wide a population as possible, in order that the final standard should truly reflect the requirements of users. This is your main opportunity to discuss the proposals with members of X3J3.
Everyone who registers for the Forum will receive a copy of the draft standard, together with full details of the way in which comments should be submitted to the BSI for onward transmission to both ISO and ANSI.

PROGRAMME

0945 Registration and Coffee

EXPOSITION SESSION
Chair: John Wilson

1015 **ISO/BSI Standardisation**
David Muxworthy

1030 **The Features and Philosophy of Fortran 8x**
John Reid and Lawrie Schonfelder

1230 Lunch

DISCUSSION SESSION
Chair: Miles Ellis

1400 **Discussion of the Features and Architecture** - Leader. Chris Lazou

Panel: Geoff Millard, John Reid, Lawrie Schonfelder, Alison Wearing, Alan Wilson

1530 Tea

1600 **Further Discussion and Straw Votes**
Leader: David Muxworthy

1700 Close

BOOKING DETAILS

Delegates are advised to book as early as possible so that the discussion document can be despatched to them and reviewed thoroughly prior to the meeting.
Fees for the event are £50.00 for members of the BCS or the Fortran Specialist Group; or £70.00 for non-members. All fees are inclusive of VAT. Please see overleaf for terms and conditions of booking.

P R E S S R E L E A S E

Fortran Forum 1987

The British Computer Society Fortran Specialist Group held a one day forum at the Institution of Mechanical Engineers on Monday 23rd November to discuss the draft proposals for the next Fortran standard. The draft standard. known as Fortran 8x, has been developed over the last 9 years by the ANSI committee X3J3 and was recently released for a period of public comment ending 23rd February 1988. The purpose of the forum was to acquaint users and potential users of Fortran with the contents of the draft standard and invite questions and comments.

Fortran is an international standard, not just a United States standard, and as such is monitored by a group within the International Standards Organisation known as ISO-IEC/JTC1/SC22/WG5 (formerly ISO/TC97/SC22/WG5). As a member country of ISO, the UK has the opportunity of voting on the draft standard and expressing the "UK's position". This will be done through the Fortran Panel of the British Standards Institution, BSI IST/5/5. Written comments are invited and should be sent, to arrive by 31st December 1987, to:

BSI Fortran,
c/o Edinburgh University Computing Service,
l, Roxburgh Street,
Edinburgh EH8 9TA

The forum was attended by over 150 people and provoked lively and informed discussion. The programme was divided into two parts: an exposition of the proposed language during the morning session and a discussion of issues raised by the audience during the afternoon session.

It was stressed that the new language would be a super-set of current Fortran containing everything currently in Fortran 77: all standard conforming Fortran programs will continue to work correctly under the new standard. Fortran 8x contains many new features designed to improve portability, reliability and efficiency of programs. It incorporates modern programming techniques into the Fortran language. The major extensions lie in the following areas:

- free format source form,
- array operations,
- improved numerical computation.
- programmer-defined data types.
- modular data concept,
- language evolution via concept of obsolescent and deprecated features.

At the end of the forum a number of informal votes were taken on some of the items discussed. The majority of the audience approved of the work done by the standards committee and did not feel the draft standard to be too large. In fact a number of further extensions were voted for:

- BIT facilities.
- pointers,
- stream I/O.
- varying length strings.
- standard format codes for hexadecimal and octal numbers.

The audience did not favour a proposal for multi-byte characters (requested by the Japanese) and was undecided about whether blank should be a "significant" character.

A vote on whether a further delay of 2 or 3 years was acceptable in order to include some of these features in the language was defeated by a small margin. The overall message to the standards committee seemed to be that the draft standard was along the right lines and should be promulgated with all expediency.

J.D. Wilson
Chairman, BCS Fortran Specialist Group
November 27, I987

FORTRAN FORUM 1987

The Fortran 8X Standard One-Day Forum

Monday 23rd November 1987

The Institution of Mechanical Engineers
London SW1

0945	*Registration and Coffee*
	EXPOSITION SESSION Chair: John Wilson
1015	**ISO/BSI Standardisation** David Muxworthy
1030	**The Features and Philosophy of Fortran 8x** John Reid and Lawrie Schonfelder
1230	*Lunch*
	DISCUSSION SESSION Chair: Miles Ellis
1400	**Discussion of the Features and Architecture** Leader: Chris Lazou
Panel:	Geoff Millard, John Reid, Lawrie Schonfelder, Alan Wilson
1530	*Tea*
1600	**Further Discussion and Straw Votes** Leader: David Muxworthy
1700	Close

FORTRAN FORUM 1987
23rd November 1987
Institution of Mechanical Engineers

LIST OF ATTENDEES

Abel, Ms A E	System Software Factors
Acharyya - Choudhuri, Mr S	ULCC
Allen, Mr R W	Plessey Research Caswell Ltd
Arnstein, Mr David	Southern Water Info. Systems
Austin, Mr Malcolm	Oxford University
Aylmer - Kelly, Ms Elisabeth	University of York
Bailey, Mr B M	Ewbank Preece Ltd
Baker, Dr D J	SERC
Banks, Mr Colin J	Serco Systems Ltd
Barnes, Mr P M	Brush Electrical Machines Ltd
Basnett, Mr P	Electricity Council
Baxter, Mr Steve	British Telecom
Bell, Dr R A	IBM UK Ltd
Bennett, Mr M W	CEGB
Blackman, Mr A W	University of Bristol
Butler, Dr R J	N F E R
Capel, Mr Adrian	Tessella Support Services Ltd
Carr, Mr Peter	Metacomco
Chatwin, Mr Steve	British Aerospace PLC
Cifuentes, Dr L L	Thorn Lighting Ltd
Collins, Mr R J	University of Manchester
Coxhead, Mr Jonathon Roy	FEGS Ltd
Crothers, Mr S R	Rutherford Appleton Laboratory
Cummings, Miss I M	Ministry of Defence
Darby, Mr Jonathan	Oxford University
Davis, Mr R	British Telecom
Denman, Mr John	SITA
Dennis, Mr B	Wimpey Offshore
Dimmer, Dr P R	Coventry Polytechnic
Duncan, Ms Ishbel	Durham University
Dunn, Mr James	University of Aberdeen
Dyke, Mr J L	HRC Ltd
Dyson, Dr J F	CHAM Ltd
Egan, Mr Sean	GEC Electrical Projects Ltd
Eldridge, Mr R H	University of Salford
Ellis, Mr T M R	Oxford University
Fayers, Mr G J	Imperial College
Fine, Dr Jeannette	Alcan International Ltd
Fisher, Mr D L	Leicester University
Ford, Mr M G	Leeds Polytechnic
Foster, Dr G W	Royal Aircraft Establishment

Gage, Mr W R	Trent Polytechnic
George, Mr R M	Kings College, London
Ghosh, Mr Nirmal	Engineering Ind.Training Board
Gilbert, Mr John C	ULCC
Gillett, Mr P B	Medical Research Council
Gillies, Mr J	British Aerospace PLC
Golton, Mr E	Rutherford Appleton Laboratory
Goode, Mr David	R T James and Partners
Gooding, Mrs Anne	Air Products Ltd
Goodsell, Mr Adrian	Hunting Engineering Ltd
Gordon, Dr John	SERC
Grey - Wilson, Mrs P	Ministry of Defence
Hall, Mr C	National Physical Laboratory
Hardy, Dr Paul	Lazer Scan Laboratories
Harmer, Mrs Valerie	University of Surrey
Harris, Mr Andrew	ZS Consultants Ltd
Harrison, Mr D A	Rolls Royce & Associates
Hattersley, Mr Bob	Scicon Ltd
Hatton, Professor Les	Programming Research Limited
Hewlett, Miss Carol	London School of Economics
Hibbert, Mr J	Ministry of Defence
Hill, Dr I D	Medical Research Council
Holmes, Mr D J	Rolls Royce PLC
Hopper, Mr Fred	Nat.Environmental Res.Council
Horder, Mr Martin	Birmingham University
Jefferson, Mr Adam	ISI
Jeffreys, Mr Martyn	Jeffreys Systems PLC
Jenyon, Mr R Alan	Cadcentre Ltd
Korwaser, Mr Hugo	Femview Ltd
Kreitz, Mr N	ECMWS
Krishnan, Mr R R	The Welding Institute
Kumar - Chaterjee, Mr Pav	SITA
Lamb, Dr Paul	Mullard Space Science Lab.
Lambeth, Mr David	Ministry of Defence
Lazou, Mr Chris	ULCC
Lynas - Gray, Dr A E	University College London
Maclaren, Mr N M	Cambridge University
MacLeod, Dr A	Paisley College of Technology
Marshall, Mr C	Ministry of Defence
Martin, Mr Richard	BP
Massey, Mr Clive	SWURCC
McLeod, Mr R I A	National Engineering Lab.
Meehan, Mr T	Ministry of Defence
Millard, Mr Geoff	EPCL
Moore, Mr K C	Atomic Weapons Establishment
Mullings, Mr David J	BUCS / SWURCC
Mumford, Dr Anne	Loughborough University
Muxworthy, Mr D T	University of Edinburgh

Newell, Mr D E	University of Sussex
Newman, Mr M R	Easams Ltd
Nock, Mr M J	Imperial College
Nunn, Mr M	CCTA
O'Dea, Ms Muireann	Cambridge Control Ltd
O'Donohoe, Dr M R	Cambridge University
O'Shea, Mrs Enid	University College of Swansea
Page, Mr Clive G	University of Leicester
Page, Mr S J	MCE RE (MOD)
Pank, Mr R S	Brunel University
Patterson, Mr Crawford	R T James and Partners
Pound, Mr Keith	Equity & Law Life Assur. Soc
Purvis, Mr G W	Meteorological Office
Quarrell, Mr Peter	PE Consulting Services
Reid, Dr John	Numerical Analysis Group
Roper, Mr J P G	University of East Anglia
Rose, Mr Peter Praxis	
Russell, Dr L M	Atomic Weapons Establishment
Russell, Mr Mike	SITA
Rutland, Mr P	Ministry of Defence
Sandy, Mr Paul	Exeter University
Saville, Mr N R	ASE Ltd
Scales, Mr Don	Seismograph Service (England)
Scholes, Mr H	CSM Geothermal
Schonfelder, Dr L	University of Liverpool
Sentance, Mr W A	The City University
Sippel - Dau, Mr T	Imperial College
Smee, Mr Paul E	University of Bristol
Smith, Mr Neil	Royal Aircraft Establishment
Smith, Mr Graham J	Department of Energy
Smith, Mr M	Rolls Royce PLC
Snell, Dr D C	Department of Energy
Staerck, Mr John	Gould Electronics Ltd
Steel, Mr J	Queen Mary College

Thoday, Mr C J	
Tilbury, Mr J	University of Salford
Tilley, Dr David	ULCC
Tomlinson, Dr J A	British Railways Board
Trasi, Mr Atma	University of Bradford
Wallace, Mr P T	Rutherford Appleton Laboratory
Wareham, Mr G	Ministry of Defence
Webster, Mr P A	University of Salford
Wheeler, Mr Jonathan	SERC
White, Mr P A	Meteorological Office
White, Mr Ian	Intercept Systems Ltd
Wilson, Mr J D	University of Leicester
Wilson, Dr Alan	Active Memory Technology Ltd
Winskill, Ms Claire	British Telecom
Wood, Mr A B	MOD (PE) A & AEE
Wormell, Mrs P	Imperial College
Wright, Dr P R S	Tessella Support Services Ltd
Young, Mr J B	Ministry of Defence
Youngman, Dr P K	University of Leicester

Administration

Allen, Miss Julia	The British Computer Society
Roberts, Miss Josy	The British Computer Society

FORTRAN FORUM 1987
Monday 23rd November 1987

DELEGATE'S COMMENTS SHEET

Any comments which you feel able to make under the following headings will be gratefully received. These will be used in the organisation of future conferences.

Delegate's Name_____

Section 1 All comments will be received in strict confidentiality by the organisers.

l) How did you hear about the conference?_____
_____

2) Why did you decide to attend the conference?_____
_____

3) Has the conference been useful to you? In what way?
_____

4) Do you think the conference has properly addressed the areas outlined in the programme?_____
_____
_____

Section 2 We would also welcome comments (praise and criticism) on the following
1) The Programme_____
_____

2) The Venue_____
_____

3) The Administration (both in the run up to and during the conference)_____
_____

4) Any General Comments_____
_____
_____

We appreciate your cooperation. Please return this form to the organiser or post it direct to: BISL Conference Department, The British Computer Society, 13 Mansfield Street, London WlM 0BP

ISO, ANSI and BSI Standardization
David Muxworthy

1. Early Developments

1954 Preliminary Specification
1955 Manual
1957 Software (IBM 704)
1958 Fortran II
1962 Fortran IV (IBM 7030)
1960 ALTAC (=Fortran II) on Philco 2000
1961 Fortran I on Univac SS80
1961 IBM 8 different compilers
1962-3 Fortran IV on IBM 7090, Univac 1107
1963 All major manufacturers committed
1964 43 different compilers in service.

2. Objectives of standardization

British Standards Institution, 1901 -

"to eliminate the national waste of time and material involved in the production of an unnecessary variety of patterns and sizes of articles for one and the same purpose".

ANSI X3.9-1966 -

".. for the purpose of promoting a high degree of interchangeability of such programs for use on a variety of automatic data processing systems."

ANSI X3.9-1978 -

"The purpose of this standard is to promote portability of FORTRAN programs for use on a variety of data processing systems".

3. Standardization Chronology

1962 Work on ASA standard started
1964 Draft standard published
1966 ASA standard adopted
1966 ASA renamed to USASI
1969 USASI renamed to ANSI
1969 First set of clarifications
1971 Second set of clarifications
1972 ANSI standard incorporated as top level of three-level ISO 1539:1972.

1970 Work on revision began
1976 Draft standard published
1977 Technical work completed
1978 Revised standard adopted by ANSI (X3.9-1978)
1980 Revised standard adopted by ISO by reference (ISO 1539:1980)

1978 Work on revision began
1987 Draft standard published
198x Technical work completed
19xx Revised standard adopted by ANSI (X3.9-19xx)
19xx Revised standard adopted by ISO (ISO 1539:19xx)

4. U.S. Department of Defense Fortran 77 Supplement April 1978

- ENDDO
- DO WHILE ... ENDDO
- INCLUDE
- IMPLICIT NONE
- Read and write past EOF on tape
- Bit handling (IOR, IAND etc)
- Bit substrings (IBITS, MVBITS etc)

5. Participating members of ISO Programming Languages Committee

Austria	Germany
Belgium	Italy
Canada	Japan
China	Netherlands
Czechoslovakia	Sweden
Denmark	United Kingdom
Finland	USA
France	USSR

6. Current work items of ISO Programming Languages Committee

Pascal	Guidelines for preparation of standards
APL	Bindings
Cobol	Conformity
Fortran	Modula 2
Algol (terminated 1987)	'C'
PL/I	Posix
Basic	Lisp
Ada	Prolog

7. Acronyms

ISO/TC97/SC22/WG5:

ISO	International Organization for Standardization
TC97	Committee for Data processing
SC22	Subcommittee for Programming Languages
WG5	Working Group for Fortran

ISO-IEC/JTCI/SC22/WG5

ANSI X3J3:

ANSI	American National Standards Institute
X3	Committee for data processing
J3	Subcommittee for Fortran

BSI IST/5/5:

BSI	British Standards Institution
IST	Committee for Data processing
/5	Subcommittee for Programming Languages
/5	Panel for Fortran

BS6832:1987 - British Standard Method for Specifying requirements for a FORTRAN language processor