STANDARD **7185**

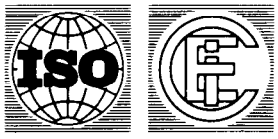
Second edition
1990-10-15

Information technology — Programming languages — Pascal

(Revision of ISO 7185 : 1983)

Technologies de l'information — Langages de programmation — Pascal

(Révision de l'ISO 7185 : 1983)



Reference number
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Contents

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 7185 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology.*

This second edition cancels and replaces the first edition (ISO 7185 : 1983).

Annexes A, B, C, D, E and F are for information.

Introduction

This International Standard provides an unambiguous and machine independent definition of the programming language Pascal. Its purpose is to facilitate portability of Pascal programs for use on a wide variety of data processing systems.

Language history

The computer programming language Pascal was designed by Professor Niklaus Wirth to satisfy two principal aims

a) to make available a language suitable for teaching programming as a systematic discipline based on certain fundamental concepts clearly and naturally reflected by the language;

b) to define a language whose implementations could be both reliable and efficient on then-available computers.

However, it has become apparent that Pascal has attributes that go far beyond these original goals. It is now being increasingly used commercially in the writing of both system and application software. This International Standard is primarily a consequence of the growing commercial interest in Pascal and the need to promote the portability of Pascal programs between data processing systems.

In drafting this International Standard the continued stability of Pascal has been a prime objective. However, apart from changes to clarify the specification, two major changes have been introduced.

a) The syntax used to specify procedural and functional parameters has been changed to require the use of a procedure or function heading, as appropriate (see **6.6.3.1**); this change was introduced to overcome a language insecurity.

b) A fifth kind of parameter, the conformant-array-parameter, has been introduced (see **6.6.3.7**). With this kind of parameter, the required bounds of the index-type of an actual-parameter are not fixed, but are restricted to a specified range of values.

Project history

In 1977, a working group was formed within the British Standards Institution (BSI) to produce a standard for the programming language Pascal. This group produced several working drafts, the first draft for public comment being widely published early in 1979. In 1978, BSI's proposal that Pascal be added to ISO's program of work was accepted, and the ISO Pascal Working Group (then designated ISO/TC97/SC5/WG4) was formed in 1979. The Pascal standard was to be published by BSI on behalf of ISO, and this British Standard referenced by the International Standard.

In the USA, in the fall of 1978, application was made to the IEEE Standards Board by the IEEE Computer Society to authorize project 770 (Pascal). After approval, the first meeting was held in January 1979.

In December of 1978, X3J9 convened as a result of a SPARC (Standards Planning and Requirements Committee) resolution to form a US TAG (Technical Advisory Group) for the ISO Pascal standardization effort initiated by the UK. These efforts were performed under X3 project 317.

In agreement with IEEE representatives, in February of 1979, an X3 resolution combined the X3J9 and P770 committees into a single committee called the Joint X3J9/IEEE-P770 Pascal Standards Committee. (Throughout, the term JPC refers to this committee.) The first meeting as JPC was held in April 1979.

The resolution to form JPC clarified the dual function of the single joint committee to produce a dpANS and a proposed IEEE Pascal standard, identical in content.

ANSI/IEEE770X3.97-1983, American National Standard Pascal Computer Programming Language, was approved by the IEEE Standards Board on September 17, 1981, and by the American National Standards

Institute on December 16, 1982. British Standard BS6192, Specification for Computer programming language Pascal, was published in 1982, and International Standard 7185 (incorporating BS6192 by reference) was approved by ISO on December 1, 1983. Differences between the ANSI and ISO standards are detailed in the Foreword of ANSI/IEEE770X3.97-1983.

In 1985, the ISO Pascal Working Group (then designated ISO/TC97/SC22/WG2, now ISO/IEC JTC1/SC22/WG2) was reconvened after a long break. An Interpretations Subgroup was formed, to interpret doubtful or ambiguous portions of the Pascal standards. As a result of the work of this subgroup, and also of the work on the Extended Pascal standard being produced by WG2 and JPC, BS6192/ISO7185 was revised and corrected during 1988/89; it is expected that ANSI/IEEE770X3.97-1983 will be replaced by the revised ISO 7185.

The major revisions to BS6192:1982 to produce the new ISO 7185 are:

a) resolution of the differences with ANSI/IEEE770X3.97-1983;

b) relaxation of the syntax of real numbers, to allow "digit sequences" rather than "unsigned integers" for the various components;

c) in the handling of "end-of-line characters" in text files;

d) in the handling of run-time errors.

Information technology — Programming languages — Pascal

1 Scope

1.1

This International Standard specifies the semantics and syntax of the computer programming language Pascal by specifying requirements for a processor and for a conforming program. Two levels of compliance are defined for both processors and programs.

1.2

This International Standard does not specify

a) the size or complexity of a program and its data that will exceed the capacity of any specific data processing system or the capacity of a particular processor, nor the actions to be taken when the corresponding limits are exceeded;

b) the minimal requirements of a data processing system that is capable of supporting an implementation of a processor for Pascal;

c) the method of activating the program-block or the set of commands used to control the environment in which a Pascal program is transformed and executed;

d) the mechanism by which programs written in Pascal are transformed for use by a data processing system;

e) the method for reporting errors or warnings;

f) the typographical representation of a program published for human reading.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 646:1983, *Information processing—ISO 7-bit coded character set for information interchange.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

NOTE — To draw attention to language concepts, some terms are printed in italics on their first mention or at their defining occurrence(s) in this International Standard.