
International Standard 5807

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Information processing — Documentation symbols and conventions for data, program and system flowcharts, program network charts and system resources charts

Traitement de l'information — Symboles de documentation et conventions applicables aux données, aux organigrammes de programmation et d'analyse, aux schémas des réseaux de programmes et des ressources de système

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 5807 was prepared by Technical Committee ISO/TC 97, *Information processing systems*.

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Information processing — Documentation symbols and conventions for data, program and system flowcharts, program network charts and system resources charts

0 Introduction

This International Standard consolidates the information given in ISO 1028 and ISO 2636, and in so doing, supersedes them.

Charts are widely used to depict various types of information processing problems and their means of solution. This International Standard does not restrict their use to the particular applications exemplified herein.

In-house rules may have to be devised to suit the process or data specification being considered. However, there are guiding principles which, if followed, will enhance readability and expedite cross-reference to the text.

Charts consist of symbols having a given signification, brief explanatory text, and connecting lines. This International Standard does not deal with the wording of the text. Nevertheless, each symbol relates to an unambiguous and meaningful name (unabbreviated if possible) which is consistent throughout the documentation.

Charts may be used at various levels of detail; the number of levels depending on the size and complexity of the information processing problem. The level of detail should be such that the various parts and the interrelationship between the parts are comprehensible as a whole.

Typically there will be a chart of the whole system showing the main constituent parts and this will form the top of a hierarchy of charts; each lower level providing a more detailed description of one or more parts shown on the next higher level chart.

1 Scope and field of application

This International Standard specifies symbols to be used in information processing documentation and gives guidance on the conventions for their use in

- a) data flowcharts;
- b) program flowcharts;
- c) system flowcharts;
- d) program network charts;
- e) system resources charts.

2 Reference

ISO 2382/1, *Data processing — Vocabulary — Part 01: Fundamental terms.*¹⁾

3 Definitions

For the purpose of this International Standard the definitions in ISO 2382/1 and the following apply.

3.1 basic symbol: Symbol used when the precise nature or form of, for example, the process or data media is not known or when it is not necessary to depict the actual medium.

3.2 specific symbol: Symbol used when the precise nature or form of, for example, the process or data media is known and when it is necessary to depict the actual medium.

3.3 flowchart: Graphical representation of the definition, analysis, or method of solution of a problem in which symbols are used to represent operations, data, flow, equipment, etc.

4 Data flowchart

Data flowcharts represent the path of data in the solving of a problem and define processing steps as well as the various data media used.

A data flowchart consists of

- a) data symbols to indicate the existence of data; they may also indicate the medium used for this data;
- b) process symbols to indicate the process to be executed on data; they may also indicate the machine function which is used for this process;
- c) line symbols to indicate the data flow between processes and/or data media;
- d) special symbols to facilitate the reading and the writing of the flowchart.

1) At present at the stage of draft. (Revision of ISO 2382/1-1974.)

By definition, process symbols should be preceded and followed by data symbols. A data flowchart begins and ends with data symbols (except special symbols as specified in 9.4).

5 Program flowchart

Program flowcharts represent the sequence of operations in a program.

A program flowchart consists of

- a) process symbols for the actual processing operations including symbols that define the path to be followed taking into account the logical conditions;
- b) line symbols to indicate the flow of control;
- c) special symbols to facilitate the reading and the writing of the flowchart.

6 System flowchart

System flowcharts represent the control of operations and the data flow of a system.

A system flowchart consists of

- a) data symbols to indicate the existence of data; they may also indicate the medium used for this data;
- b) process symbols to indicate the operations to be executed on data, as well as to define the logical path to be followed;
- c) line symbols to indicate data flow between processes and/or data media as well as the control flow between processes;
- d) special symbols to facilitate the reading and writing of the flowchart.

7 Program network chart

Program network charts represent the path of program activations and the interactions to related data. Each program in a program network chart is shown only once, whereas in a system flowchart it may appear in more than one control flow.

A program network chart consists of

- a) data symbols to indicate the existence of data;
- b) process symbols to indicate the operations to be executed on data;

c) line symbols to show the flow between processes and data as well as the activations of processes;

d) special symbols to facilitate the reading and writing of the network charts.

8 System resources chart

System resources charts represent the configuration of data units and process units suitable for the solving of a problem or of a set of problems.

A system resources chart consists of

- a) data symbols to show input, output or storage devices;
- b) process symbols to represent processors, for example, central processing units, channels, etc.;
- c) line symbols to represent the data transfer between data devices and processors and control transfer between processors;
- d) special symbols to facilitate the reading and the writing of the system resources chart.

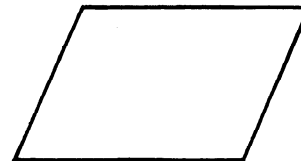
9 Symbols

9.1 Data symbols

9.1.1 Basic data symbols

9.1.1.1 Data

This symbol represents data, the medium being unspecified.



9.1.1.2 Stored data

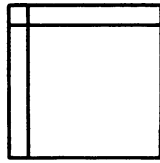
This symbol represents stored data in a form suitable for processing, the medium being unspecified.



9.1.2 Specific data symbols

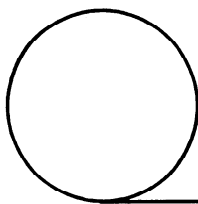
9.1.2.1 Internal storage

This symbol represents data, the medium being internal storage.



9.1.2.2 Sequential access storage

This symbol represents data that is only sequentially accessible, the medium being, for example, magnetic tape, tape cartridge, tape cassette.



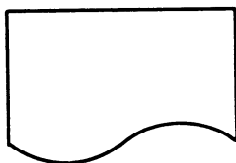
9.1.2.3 Direct access storage

This symbol represents data directly accessible, the medium being, for example, magnetic disk, drum, flexible disk.



9.1.2.4 Document

This symbol represents human readable data, the medium being, for example, printed output, an OCR or MICR document, microfilm, tally roll, data entry forms.



9.1.2.5 Manual input

This symbol represents data, the medium being of any type where the information is entered manually at the time of processing, for example, on-line keyboard, switch settings, push buttons, light pen, bar-code wand.



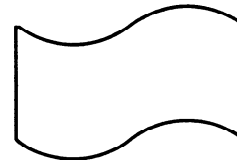
9.1.2.6 Card

This symbol represents data, the medium being cards, for example, punched cards, magnetic cards, mark sense cards, stub cards, mark scan cards.



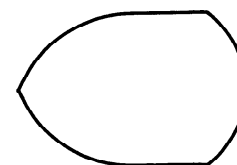
9.1.2.7 Punched tape

This symbol represents data, the medium being paper tape.



9.1.2.8 Display

This symbol represents data, the medium being of any type where the information is displayed for human use, for example, video screens, on-line indicators.



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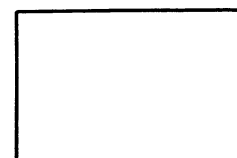
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9.2 Process symbols

9.2.1 Basic process symbol

Process

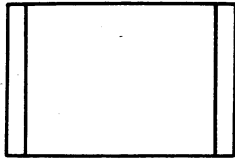
This symbol represents any kind of processing function, for example, executing a defined operation or group of operations resulting in a change in value, form or location of information, or in the determination of which one of several flow directions is to be followed.



9.2.2 Specific process symbols

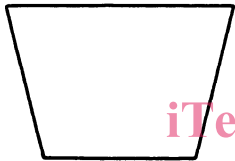
9.2.2.1 Predefined process

This symbol represents a named process consisting of one or more operations or program steps that are specified elsewhere, for example, a subroutine, a module.



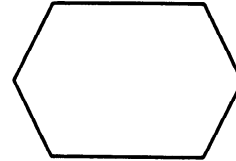
9.2.2.2 Manual operation

This symbol represents any process performed by a human being.



9.2.2.3 Preparation

This symbol represents modification of an instruction or group of instructions in order to affect some subsequent activity, for example, setting a switch, modifying an index register or initializing a routine.



9.2.2.4 Decision

This symbol represents a decision or switching type function having a single entry but where there may be a number of alternative exits, one and only one of which may be activated following the evaluation of conditions defined within the symbol. The appropriate results of the evaluation may be written adjacent to the lines representing the paths (see 10.3.1.2).



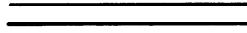
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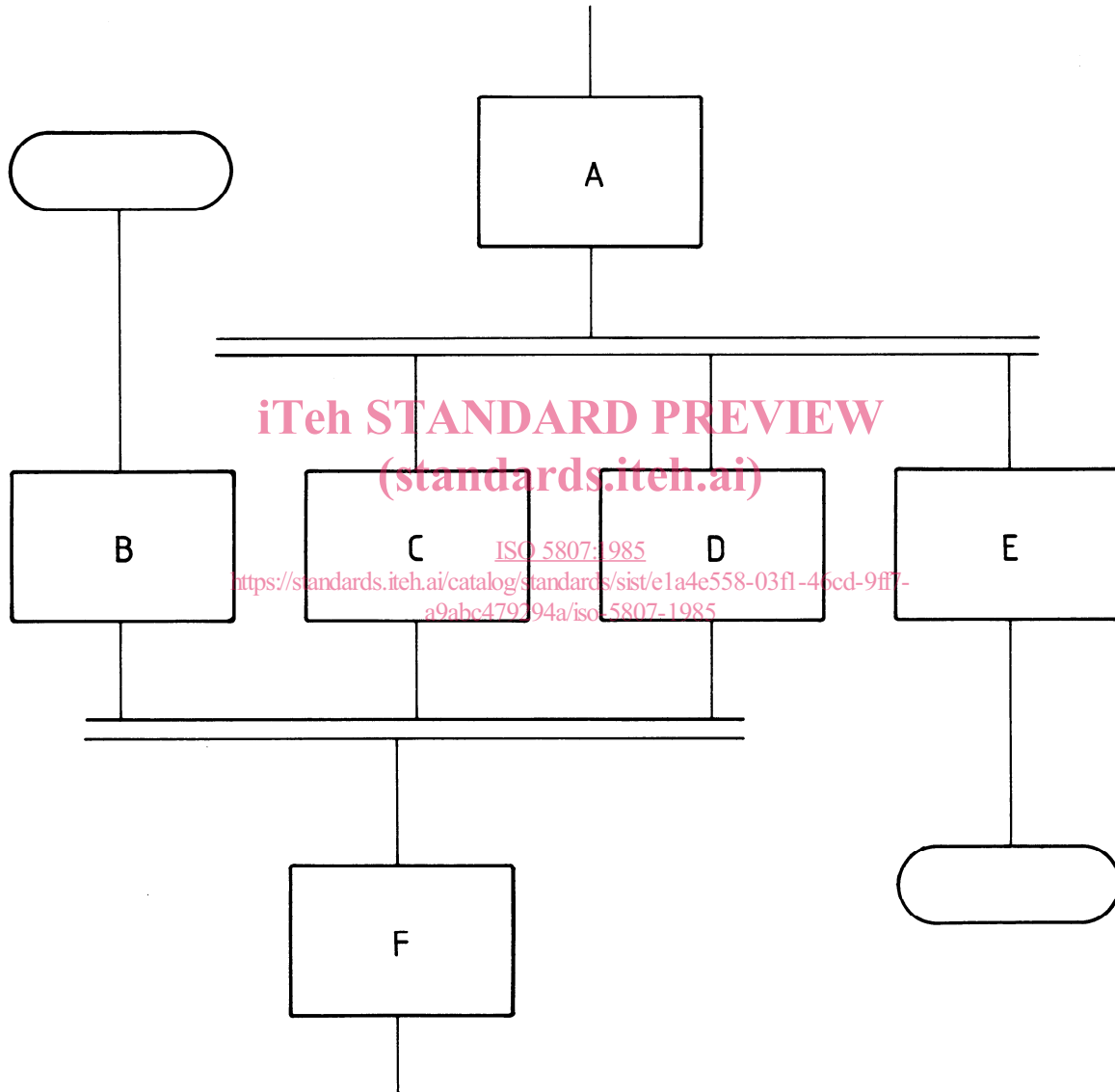
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9.2.2.5 Parallel mode

This symbol represents the synchronization of two or more parallel operations.



Example:

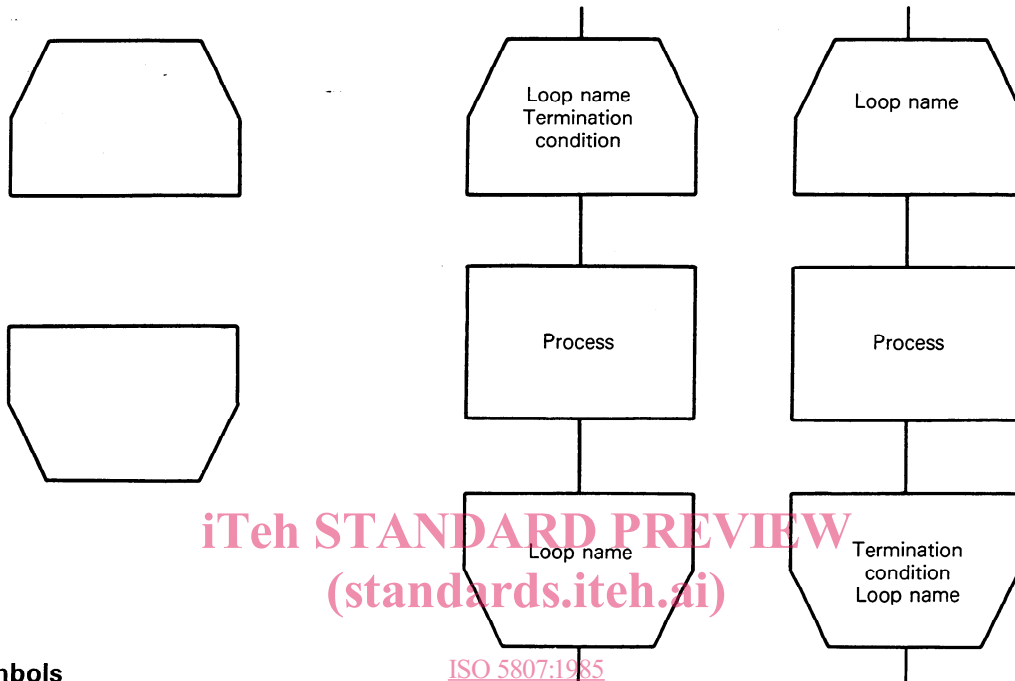


NOTE — Processes C, D and E cannot commence until process A has been completed; similarly process F should await completion of B, C and D; but process C may start and/or end before process D has started and/or ended respectively.

9.2.2.6 Loop limit

This symbol, in two parts, represents the beginning and end of a loop. The two parts of the symbol have the same identifier. The conditions for initialization, increment, termination, etc., appear inside the symbol at the beginning or at the end according to the location of the test operation.

Example:



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9.3 Line symbols

9.3.1 Basic line symbol

Line

This symbol represents the flow of data or control.

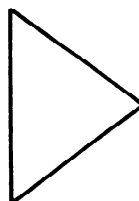


Solid or open arrowheads shall be added to indicate direction of flow where necessary (see 10.2.1.2) or may be added to enhance the readability.

9.3.2 Specific line symbols

9.3.2.1 Control transfer

This symbol represents immediate transfer of control from one process to another, sometimes with a chance of the direct return to the activating process after the activated process completes its actions. The type of control transfer should be named inside the symbol, for example, call, fetch, event.



9.3.2.2 Communication link

This symbol represents data transfer by a telecommunication link.

**9.3.2.3** Dashed line

This symbol represents an alternative relationship between two or more symbols. The symbol is also used to surround an annotated area (see 9.4.3).



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Examples:

a) in cases where one of a number of alternative outputs is used as an input to a process, or an output is used as an input for alternative processes, these symbols are connected by dashed lines.

