TECHNICAL REPORT

ISO
TR 10623

First edition
1991-12-15

Technical product documentation —
Requirements for computer-aided design and
draughting — Vocabulary

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*Documentation de produits techniques — Exigences pour la conception
et le dessin assistés par ordinateur — Vocabulaire*

ISO/TR 10623:1991
https://standards.iteh.ai/catalog/standards/sist/1eff24dc-061c-4efd-a369-
8b7629aa6d66/iso-tr-10623-1991

Reference number
ISO/TR 10623:1991(E)

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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

— type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/TR 10623, which is a Technical Report of type 3, was prepared by Technical Committee ISO/TC 10, *Technical drawings, product definition and related documentation.*

Introduction

This Technical Report deals with the most important terms necessary for the es-
tablishment of a solid base of terms for use in the computer-aided design (CAD)
industry, explains terms used in specialized sections in various technical
fields, and identifies the essential terms which should be used by non-special-
ist users communicating with specialists in CAD and related techniques.

It is understood that the terms given in this Technical Report represent generic
CAD terms and are not all-encompassing. This vocabulary has been drafted on the
basis of a number of existing International Standards and national standards.
Where applicable, the reference to the particular standard is given in square
brackets after the definition of the term.

Technical product documentation — Requirements for computer-aided design and draughting — Vocabulary

1 Scope

This Technical Report is intended to facilitate communication in computer-aided design (CAD) technology. It presents terms and definitions of selected concepts relevant to the field of data processing and CAD, and identifies relationships between the terms.

It deals with the main areas of the CAD technique for the representation of technical drawing information. These include the principal processes and types of equipment used; the representation, organization and presentation of data; the programming and operation of computers; the input-output devices and peripheral equipment; the terms describing particular CAD applications and tools.

Terms such as CAD, CAE, CAM and CADD have not been defined owing to the fact that they have specific meanings in the different technical disciplines. As a result these terms may be interpreted as meaning "the use of computers" in the design, engineering, manufacturing and draughting disciplines, respectively.

2 Definitions

(Sources, if any, are given in square brackets after the definition.)

2.1 Algorithm

A finite ordered set of well-defined rules for the solution of a problem.

[ISO/IEC 2382-1:-, term 01.05.05]

2.2 Alphabet

An ordered character set, the order of which has been agreed upon.

NOTE – This definition also covers the alphabet of natural languages consisting of those characters represented by letters including letters with diacritical marks.

[ISO 2382-4:1987, term 04.03.03]

2.3 Alphabetic [numeric] [alphanumeric] [binary] code

A code whose application results in a code element set whose elements are formed from an alphabetic [numeric] [alphanumeric] [binary] character set.

[ISO 2382-4:1987, term 04.02.06]

2.4 Application software [program]

A software [program] that is specific to the solution of an application problem.

[ISO/IEC 2382-1:-, term 01.09.03]

2.5 Approval phase

Phase in which documents containing design data are formally checked and adopted. Markings and visible proofs of approval are made on the original document.

2.6 ASCII (abbreviation)

American Standard Code for Information Interchange.

2.7 Assembly language

A programming language that provides symbolic forms for machine instructions.

NOTE - Assembly languages usually also provide macro calls.

[ISO/IEC 2382-7:1989, term 07.01.09]

2.8 Attribute

A named property of an entity.

[ISO/IEC 2382-17:-, term 17.02.10]

2.9 Automatic

Pertaining to a process or equipment that, under specified conditions, functions without human intervention.

[ISO/IEC 2382-1:-, term 01.01.07]

2.10 Automation

The conversion of processes or equipment to automatic operation or the results of the conversion.

[ISO/IEC 2382-1:-, term 01.01.09]

2.11 Authorization

Of a user, his rights to access (read, modify, insert, delete) certain data.

2.12 CAD (abbreviation)

Computer-aided design.

The design activities, including draughting and illustrating, in which information processing systems are used to carry out functions such as designing or improving a part or a product.

NOTE - Usually CAD and CAM are used together and expressed as CAD/CAM.

[ISO/IEC 2382-24:-, term 24.01.04]

2.13 CA drawing (abbreviation)

Computer-aided drawing.

2.14 CAE (abbreviation)

Computer-aided engineering.

Analysis of a design to check for basic errors, and to optimize manufacturability, performance, productivity or economy by using information processing systems.

NOTE - Information from the CAD/CAM design database is used to analyse the functional characteristics of a part or a product under design, or to simulate its performance under various conditions.

[ISO/IEC 2382-24:-, term 24.01.03]

2.15 CAM (abbreviation)

Computer-aided manufacturing.

The production process in which information processing systems are used to direct and control manufacturing.

NOTE - Usually CAD and CAM are used together and expressed as CAD/CAM.

[ISO/IEC 2382-24:-, term 24.01.07]

2.16 CASE (abbreviation)

Computer-aided software engineering.

2.17 Central processing unit
      CPU (abbreviation)

A functional unit that consists of one or more processors and their internal
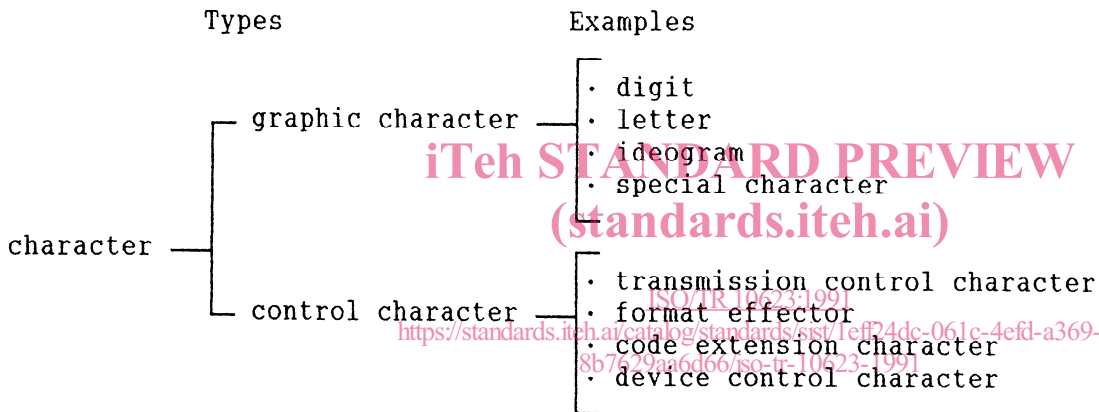storages.

NOTE - In English, the term "processor" is often used synonymously with proces-
sing unit.

[ISO/IEC 2382-1:-, term 01.03.01]

2.18 Character

A member of a set of elements that is used for the representation, organization,
or control of data.

NOTE - Characters may be categorized as follows:


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        Types                    Examples
                              ┌  · digit
         ┌ graphic character ─┤  · letter
         │                    │  · ideogram
         │                    └  · special character
character┤
         │                    ┌  · transmission control character
         └ control character ─┤  · format effector
                              │  · code extension character
                              └  · device control character
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[ISO 2382-4:1987, term 04.01.01]

2.19 CIM (abbreviation)

Computer-integrated manufacturing.

The production of which all activities are integrated into a computer-based
planning management and control system.

NOTE - CIM includes the technologies of CAD, CAP, CAM, CAQ and PPS and the
sharing of information among them; however, it does not include CAO.

[ISO/IEC 2382-24:-, term 24.01.02]

2.20 Code
      Coding scheme

A collection of rules that maps the elements of one set on to the elements of a second set.

NOTES

1 The elements may be characters or character strings.

2 The first set is the coded set and the second is the code element set.

3 An element of the code element set may be related to more than one element of the coded set but the reverse is not true.

[ISO 2382-4:1987, term 04.02.01]

2.21 COM (abbreviation)

Computer output microfilming.

A technique for converting and recording data from a computer directly onto a microform.

[ISO 2382-13:1984, term 13.06.02]

2.22 Communication security

Physical security and transfer protocol checking of data during the transmission of information.

2.23 Compile (verb)

To translate all or part of a program expressed in a high-level language into a computer program expressed in an intermediate language, an assembly language, or a machine language.

[ISO/IEC 2382-7:1989, term 07.03.03]

2.24 Computer

A functional unit that can perform substantial computations, including numerous arithmetic operations and logic operations, without human intervention during a run.

NOTES

1 In information processing the term computer usually describes a digital computer.

2 A computer may consist of a stand-alone unit or may consist of several interconnected units.

[ISO/IEC 2382-1:-, term 01.03.03]

2.25 Computer graphics

Methods and techniques for converting data to or from graphic display via computers.

[ISO/IEC 2382-1:-, term 01.06.07]

2.26 (Computer) program

A syntactic unit that conforms to the rules of a particular programming language composed of declarations and statements or instructions needed to solve a certain function, task, or problem.

[ISO/IEC 2382-1:-, term 01.05.01]

2.27 Copyright

The exclusive right to the publication, production or sale of the rights to data or the resulting product, granted by law for a definite period of time.

2.28 CPU (abbreviation)

Central processing unit (see 2.17).

2.29 Data

A re-interpretable representation of information in a formalized manner suitable for communication, interpretation, or processing.

NOTE - Operations can be performed upon data by humans or by automatic means.

[ISO/IEC 2382-1:-, term 01.01.02]

2.30 Data bank

A set of data related to a given subject and organized in such a way that it can be consulted by users.

[ISO 2382-4:1987, term 04.07.14]

2.31 Database

A data structure for accepting, storing and providing on demand data for multiple independent users.

[ISO 2382-4:1987, term 04.07.15]

2.32   Database management system
       DBMS (abbreviation)
       Database system

A computer-based system for defining, creating, manipulating, controlling, man-
aging and using databases.

NOTE - The software for using a database may be part of the database management
system or may be a stand-alone database system.

[ISO/IEC 2382-1:-, term 01.08.05]

2.33   Data medium

The material in or on which data can be recorded and from which data can be re-
trieved.

[ISO/IEC 2382-1:-, term 01.01.48]

2.34   Data processing
       DP (abbreviation)
       Automatic data processing
       ADP (abbreviation)

The systematic performance of operations upon data.

Examples: Arithmetic or logic operations upon data, merging or sorting of data,
assembling or compiling of programs.

NOTE - The term data processing must not be used as a synonym for information
processing.

[ISO/IEC 2382-1:-, term 01.01.03]

2.34.1   Data processing system security
         Computer system security

The technological and administrative safeguards established and applied to a
data processing system to protect hardware, software, and data from accidental
or malicious modifications, misuse, destruction or disclosure.

[ISO/IEC 2382-1:-, term 01.01.41]

2.35   Data transfer

Moving of data from one computer process to another in an ordered form.

2.36   (left blank intentionally)

2.37   Development phase

Phase in which the actual product design and improvement work is carried out.

2.38 Digital

Pertaining to data that consist of digits.

[ISO/IEC 2382-1:-, term 01.02.04]

2.39 Digitization

To capture data of a physical nature using a computer program and to represent those data in alphanumeric form.

2.40 Digitize (verb)

To express or represent in a digital form data that are not discrete data.

Example: To obtain a digital representation of the magnitude of a physical quantity from an analog representation of that magnitude.

[ISO 2382-5:1989, term 05.01.15]

2.41 DIL (abbreviation)

Document issuing list (see 2.51).

2.42 Magnetic disk

A flat circular plate with a magnetizable surface layer on one or both sides of which data can be stored.

[ISO 2382-12:1988, term 12.01.36]

2.43 Diskette

A small magnetic disk enclosed in a jacket.

NOTE - Sometimes the words "diskette" and "floppy disk" are used interchangeably.

[ISO 2382-12:1988, term 12.01.39]

2.44 Display

A visual presentation of data.

[ISO 2382-13:1984, term 13.03.01]