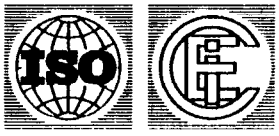
INTERNATIONAL STANDARD

ISO/IEC 646

Third edition
1991-12-15

Information technology — ISO 7-bit coded character set for information interchange

Technologies de l'information — Jeu ISO de caractères codés à 7 éléments pour l'échange d'informations



Reference number
ISO/IEC 646:1991(E)

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

This third edition cancels and replaces the second edition (ISO 646 : 1983) which has been technically revised.

Annex A forms an integral part of this International Standard. Annexes B and C are for information only.

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Information technology — ISO 7-bit coded character set for information interchange

1 Scope

This International Standard specifies a set of 128 characters, (control characters and graphic characters such as letters, digits and symbols) with their coded representation. Most of these characters are mandatory and unchangeable, but provision is made for some flexibility to accommodate national and other requirements.

This International Standard specifies a 7-bit coded character set with a number of options. It also provides guidance on how to exercise the options to define specific national versions and application-oriented versions. Furthermore it specifies the International Reference Version (IRV) in which such options have been exercised.

This character set is primarily intended for the interchange of information among data processing systems and associated equipment, and within data communication systems. The need for graphic characters and control functions in data processing has also been taken into account in determining this character set.

This character set is applicable to alphabets of the Latin script.

This character set allows the use of control characters for code extension where its character set is insufficient for particular applications. Procedures for the use of these control characters are specified in ISO 2022.

The definitions of the control characters mentioned in this International Standard are specified in ISO 6429. It is assumed that data associated with them are to be processed serially in a forward direction. When they are included in strings of data which are processed other than serially in a forward direction or when they are included in data formatted for fixed-record processing they may have undesirable effects or may require additional special treatment to ensure that they result in their desired function.

2 Conformance and implementation

2.1 Conformance

2.1.1 Conformance of information interchange

A coded-character-data-element (CC-data-element) within coded information for interchange is in conformance with this International Standard if all the coded representations of characters within that CC-data-element conform to the requirements of 8.1 of this International Standard.

A claim of conformance shall identify the version adopted in accordance with 8.2 to 8.4.

2.1.2 Conformance of devices

A device is in conformance with this International Standard if it conforms to the requirements of 2.1.2.1, and either or both of 2.1.2.2 and 2.1.2.3 below. A claim of conformance shall identify the version adopted.

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2.1.2.1 Device description

A device that conforms to this International Standard shall be the subject of a description that identifies the means by which the user may supply characters to the device, or may recognize them when they are made available to him, as specified respectively in 2.1.2.2 and 2.1.2.3.

2.1.2.2 Originating devices

An originating device shall allow its user to supply any sequence of characters from the version adopted, and shall be capable of transmitting their coded representations within a CC-data-element.

2.1.2.3 Receiving devices

A receiving device shall be capable of receiving and interpreting any coded representations of characters that are within a CC-data-element, and that conform to 2.1.1, and shall make the corresponding characters available to its user in such a way that the user can identify them from among those of the version adopted, and can distinguish them from each other.

2.2 Implementation

The use of this character set requires definitions of its implementation in various media. For example, these could include punched tapes, punched cards, magnetic and optical interchangeable media and transmission channels, thus permitting interchange of data to take place either indirectly by means of an intermediate recording on a physical medium, or by local connection of various units (such as input and output devices and computers) or by means of data transmission equipment.

The implementation of this coded character set in physical media and for transmission, taking into account the need for error checking, is the subject of other International Standards.

3 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were 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 editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2022 : 1986, *Information processing - ISO 7-bit and 8-bit coded character sets - Code extension techniques.*

ISO/IEC 6429 : [1], *Information processing - Control functions for 7-bit and 8-bit coded character sets.*

4 Definitions

For the purpose of this International Standard the following definitions apply.

4.1 active position : The character position which is to image the graphic symbol representing the next graphic character or relative to which the next control function is to be executed.

NOTE 1 - In general, the active position is indicated in a display by a cursor.

4.2 bit combination : An ordered set of bits used for the representation of characters.

4.3 character : A member of a set of elements used for the organization, control or representation of data.

4.4 character position : The portion of a display that is imaging or is capable of imaging a graphic symbol.

4.5 coded character set; code : A set of unambiguous rules that establishes a character set and the one-to-one relationship between the characters of the set and their bit combinations.

1) To be published.

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4.6 coded-character-data-element (CC-data-element) : An element of interchanged information that is specified to consist of a sequence of coded representations of characters, in accordance with one or more identified standards for coded character sets.

NOTE 2 - In a communication environment according to the Reference Model for Open Systems Interconnection (ISO 7498), a CC-data-element will form all or part of the information that corresponds to the Presentation - Protocol -Data - Unit (PPDU) defined in that International Standard.

NOTE 3 - When information interchange is accomplished by means of interchangeable media, a CC-data-element will form all or part of the information that corresponds to the user data, and not that recorded during formatting and initialization.

4.7 code extension : The techniques for the encoding of characters that are not included in the character set of a given code.

4.8 code table : A table showing the character allocated to each bit combination in a code.

4.9 control character : A control function the coded representation of which consists of a single bit combination.

4.10 control function : An action that affects the recording, processing, transmission, or interpretation of data, and that has a coded representation consisting of one or more bit combinations.

4.11 device : A component of information processing equipment which can transmit, and/or receive, coded information within CC-data-elements.

NOTE 4 - It may be an input/output device in the conventional sense, or a process such as an application program or gateway function.

4.12 escape sequence : A string of bit combinations that is used for control purposes in code extension procedures. The first of these bit combinations represents the control function ESCAPE.

4.13 Final Byte : The bit combination that terminates an escape sequence or a control sequence.

4.14 graphic character : A character, other than a control function, that has a visual representation normally handwritten, printed or displayed, and that has a coded representation consisting of one or more bit combinations.

4.15 graphic symbol : A visual representation of a graphic character or of a control function.

4.16 repertoire : A specified set of characters that are represented by means of one or more bit combinations of a coded character set.

4.17 user : A person or other entity that invokes the services provided by a device.

NOTE 5 - This entity may be a process such as an application program if the "device" is a code convertor or a gateway function, for example.

NOTE 6 - The characters, as supplied by the user or made available to him, may be in the form of codes local to the device, or of non-conventional visible representations, provided that 2.1.2 above is satisfied.

5 Notation, code table and names

5.1 Notation

The bits of the bit combinations of the 7-bit code are identified by b_7, b_6, b_5, b_4, b_3, b_2 and b_1, where b_7 is the highest-order, or most-significant, bit and b_1 is the lowest-order, or least-significant, bit.

The bit combinations may be interpreted to represent integers in the range 0 to 127 in binary notation by attributing the following weights to the individual bits:

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Bit :	b_7	b_6	b_5	b_4	b_3	b_2	b_1
Weight :	64	32	16	8	4	2	1

In this International Standard, the bit combinations are identified by notations of the form x/y, where x is a number in the range 0 to 7 and y is a number in the range 0 to 15. The correspondence between the notations of the form x/y and the bit combinations consisting of the bits b_7 to b_1 is as follows:

- x is the number represented by b_7, b_6 and b_5 where these bits are given the weights 4, 2 and 1 respectively;
- y is the number represented by b_4, b_3, b_2 and b_1 where these bits are given the weights 8, 4, 2 and 1 respectively.

The notations of the form x/y are the same as those used to identify code table positions, where x is the column number and y the row number (see 5.2).

5.2 Code table

A 7-bit code table consists of 128 positions arranged in 8 columns and 16 rows. The columns are numbered 0 to 7 and the rows 0 to 15.

The code table positions are identified by notations of the form x/y, where x is the column number and y is the row number.

The positions of the code table are in one-to-one correspondence with the bit combinations of the code. The notation of a code table position, of the form x/y, is the same as that of the corresponding bit combination.

5.3 Names

This International Standard assigns one name to each character. In addition, it specifies an acronym for each control character and for the characters SPACE and DELETE, and a graphic symbol for each graphic character. By convention, only capital letters, space and hyphen are used for writing the names of the characters. For acronyms only capital letters and digits are used. It is intended that the acronyms and this convention be retained in all translations of the text.

The names chosen to denote graphic characters are intended to reflect their customary meaning. However, this International Standard does not define and does not restrict the meanings of graphic characters. Neither does it specify a particular style or font design for the graphic characters when imaged.

6 Specification of the coded character set

6.1 Structure

The coded character set of this International Standard shall have the following structure.

- a C0 control character set of up to 32 control characters;
- the graphic character SPACE (SP);
- a G0 graphic character set of up to 94 graphic characters;
- the character DELETE (DEL).

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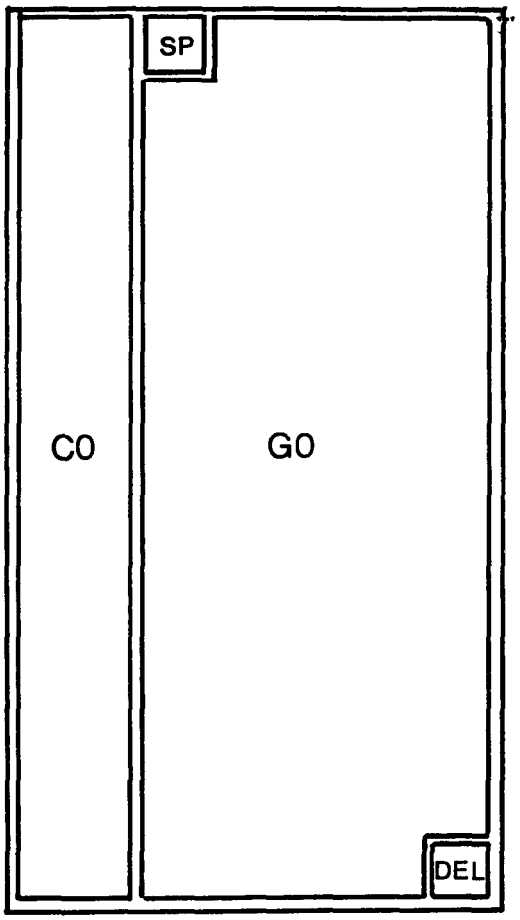


Figure 1 - Structure of the 7-bit coded character set

6.2 Control characters

The control characters of the C0 set shall be represented by bit combinations as specified in annex A.

6.3 Character SPACE

The acronym of the character SPACE is SP and it is represented by bit combination 2/0.

This character is a graphic character, it has a visual representation consisting of the absence of a graphic symbol.

6.4 Graphic characters

The 94 bit combinations 2/1 to 7/14 are used for the representation of graphic characters as specified in 6.4.1, 6.4.2 and 6.4.3.

All graphic characters shall be spacing characters, that is, they cause the active position to advance by one character position.

6.4.1 Unique graphic character allocations

A unique graphic character is allocated to each of the 82 bit combinations 2/1, 2/2, 2/5 to 3/15, 4/1 to 5/10, 5/15 and 6/1 to 7/10. These graphic characters are specified in table 1.

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Table 1 - Unique graphic character allocations

Graphic Symbol	Name	Coded representation
!	EXCLAMATION MARK	2/1
"	QUOTATION MARK	2/2
%	PERCENT SIGN	2/5
&	AMPERSAND	2/6
'	APOSTROPHE	2/7
(	LEFT PARENTHESIS	2/8
)	RIGHT PARENTHESIS	2/9
*	ASTERISK	2/10
+	PLUS SIGN	2/11
,	COMMA	2/12
-	HYPHEN-MINUS	2/13
.	FULL STOP	2/14
/	SOLIDUS	2/15
0	DIGIT ZERO	3/0
1	DIGIT ONE	3/1
2	DIGIT TWO	3/2
3	DIGIT THREE	3/3
4	DIGIT FOUR	3/4
5	DIGIT FIVE	3/5
6	DIGIT SIX	3/6
7	DIGIT SEVEN	3/7
8	DIGIT EIGHT	3/8
9	DIGIT NINE	3/9
:	COLON	3/10
;	SEMICOLON	3/11
<	LESS-THAN SIGN	3/12
=	EQUALS SIGN	3/13
>	GREATER-THAN SIGN	3/14
?	QUESTION MARK	3/15
A	LATIN CAPITAL LETTER A	4/1
B	LATIN CAPITAL LETTER B	4/2
C	LATIN CAPITAL LETTER C	4/3
D	LATIN CAPITAL LETTER D	4/4
E	LATIN CAPITAL LETTER E	4/5
F	LATIN CAPITAL LETTER F	4/6
G	LATIN CAPITAL LETTER G	4/7
H	LATIN CAPITAL LETTER H	4/8
I	LATIN CAPITAL LETTER I	4/9
J	LATIN CAPITAL LETTER J	4/10
K	LATIN CAPITAL LETTER K	4/11
L	LATIN CAPITAL LETTER L	4/12
M	LATIN CAPITAL LETTER M	4/13
N	LATIN CAPITAL LETTER N	4/14
O	LATIN CAPITAL LETTER O	4/15
P	LATIN CAPITAL LETTER P	5/0
Q	LATIN CAPITAL LETTER Q	5/1
R	LATIN CAPITAL LETTER R	5/2
S	LATIN CAPITAL LETTER S	5/3

(continued)

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Table 1 - Unique graphic character allocations

Graphic Symbol	Name	Coded representation
T	LATIN CAPITAL LETTER T	5/4
U	LATIN CAPITAL LETTER U	5/5
V	LATIN CAPITAL LETTER V	5/6
W	LATIN CAPITAL LETTER W	5/7
X	LATIN CAPITAL LETTER X	5/8
Y	LATIN CAPITAL LETTER Y	5/9
Z	LATIN CAPITAL LETTER Z	5/10
_	LOW LINE	5/15
a	LATIN SMALL LETTER A	6/1
b	LATIN SMALL LETTER B	6/2
c	LATIN SMALL LETTER C	6/3
d	LATIN SMALL LETTER D	6/4
e	LATIN SMALL LETTER E	6/5
f	LATIN SMALL LETTER F	6/6
g	LATIN SMALL LETTER G	6/7
h	LATIN SMALL LETTER H	6/8
i	LATIN SMALL LETTER I	6/9
j	LATIN SMALL LETTER J	6/10
k	LATIN SMALL LETTER K	6/11
l	LATIN SMALL LETTER L	6/12
m	LATIN SMALL LETTER M	6/13
n	LATIN SMALL LETTER N	6/14
o	LATIN SMALL LETTER O	6/15
p	LATIN SMALL LETTER P	7/0
q	LATIN SMALL LETTER Q	7/1
r	LATIN SMALL LETTER R	7/2
s	LATIN SMALL LETTER S	7/3
t	LATIN SMALL LETTER T	7/4
u	LATIN SMALL LETTER U	7/5
v	LATIN SMALL LETTER V	7/6
w	LATIN SMALL LETTER W	7/7
x	LATIN SMALL LETTER X	7/8
y	LATIN SMALL LETTER Y	7/9
z	LATIN SMALL LETTER Z	7/10

6.4.2 Alternative graphic character allocations

Two alternative graphic characters are allocated to each of the bit combinations 2/3 and 2/4. These characters are specified in table 2.

Table 2 - Alternative graphic character allocations

Graphic Symbol	Name	Coded representation
#	NUMBER SIGN	2/3
£	POUND SIGN	2/3
$	DOLLAR SIGN	2/4
¤	CURRENCY SIGN	2/4

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Either the character NUMBER SIGN or the character POUND SIGN shall be allocated to bit combination 2/3 and either the character DOLLAR SIGN or the character CURRENCY SIGN shall be allocated to bit combination 2/4 (see clause 8).

Unless otherwise agreed between sender and recipient, the graphic symbols £, $ and ¤ do not designate the currency of a specific country.

6.4.3 National or application-oriented graphic character allocations

No specific graphic character is allocated to the ten bit combinations 4/0, 5/11 to 5/14, 6/0 and 7/11 to 7/14. These bit combinations are available for national or application-oriented use. Either a unique graphic character shall be allocated to each of these bit combinations, or the bit combination shall be declared unused (see 8.1).

6.5 Character DELETE

The acronym of the character DELETE is DEL and it is represented by bit combinationat 7/15. DEL was originally used to erase or obliterate an erroneous or unwanted character in punched tape. DEL may be used for media-fill or time-fill. DEL characters may be inserted into, or removed from, a data stream without affecting the information content of that stream, but such action may affect the information layout and/or the control of equipment.

7 Composite graphic characters

Whilst all graphic characters specified in this International Standard are spacing characters, it is possible, by using BACKSPACE or CARRIAGE RETURN to image two or more graphic characters at the same character position (see also clause B.2 of annex B).

For example, SOLIDUS and EQUALS SIGN may be combined to image "not equals". The character LOW LINE, that may be used as a free-standing character, may also be associated with other character(s) to represent the graphic rendition "underlined".

Diacritical marks may be allocated to the bit combinations specified in 6.4.3 and be available for composing accented letters. For such composition a sequence of three characters, the first or last of which is the letter to be accented and the second of which is BACKSPACE may be used. Furthermore, QUOTATION MARK, APOSTROPHE or COMMA can be associated with a letter by means of BACKSPACE for the composition of an accented letter with a diaeresis, an acute accent or a cedilla, respectively.

8 Versions of the coded character set

8.1 General

In order to use the 7-bit coded character set for information interchange, it is necessary to exercise the options left open in clause 6

- to specify the C0 set of control characters according to annex A.
- to specify the G0 set:
  - to allocate to each of the bit combinations 2/3 and 2/4 one of the alternative graphic characters specified in 6.4.2,
  - to allocate to each of the bit combinations 4/0, 5/11 to 5/14, 6/0, and 7/11 to 7/14 a unique graphic character, or to declare the bit combination unused.

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A graphic character allocated to a bit combination specified in 6.4.1 and 6.4.2 shall not be allocated to any other bit combination. For example, the POUND SIGN, if not allocated to bit combination 2/3, shall not be allocated to any other bit combination.

A character set completed in this way is called a "version of ISO 646".

Such a version will generally be the subject of a specification document which states how the above options have been exercised. Such a specification is said to be in accordance with this International Standard.

8.2 International Reference Version (IRV)

This version is available for use when there is no requirement to use a national or an application-oriented version. In information interchange, the IRV is assumed unless an agreement exists between sender and recipient of the data (see also clause 10). The graphic characters allocated to the G0 set of the IRV shall be as specified in tables 1 and 3. Agreement between sender and recipient of the data shall be required if composite characters are used.

If the C0 set of the IRV is used, it shall be as specified in clause A.2 of annex A.

Table 3 - IRV graphic character allocations

Graphic Symbol	Name	Coded representation
#	NUMBER SIGN	2/3
$	DOLLAR SIGN	2/4
@	COMMERCIAL AT	4/0
[	LEFT SQUARE BRACKET	5/11
\	REVERSE SOLIDUS	5/12
]	RIGHT SQUARE BRACKET	5/13
^	CIRCUMFLEX ACCENT	5/14
`	GRAVE ACCENT	6/0
{	LEFT CURLY BRACKET	7/11
|	VERTICAL LINE	7/12
}	RIGHT CURLY BRACKET	7/13
~	TILDE	7/14

8.3 National versions

8.3.1 The responsibility for defining national versions lies with the national standardization bodies. These bodies shall exercise the options available and make the required selection (see annex B).

8.3.2 If so required, more than one national version can be defined within a country. The different versions shall be separately identified. In particular, when alternative graphic characters are required, for a given bit combination, for example 5/12, two different versions shall be identified, even if they differ only by this single character.

8.3.3 If, in a country, there is no special demand for specific graphic characters, it is strongly recommended that the characters of the G0 set of the International Reference Version (IRV) be selected and allocated to the same bit combinations as in the IRV.

However, when graphic characters that are different from the characters of the IRV are required, they shall have distinct forms and be given distinctive names which are not in conflict with any of the forms or the names of any of the graphic characters in the IRV.

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8.4 Application-oriented versions

Within national or international industries, organizations or professional groups, application-oriented versions may be used. They require precise agreement among the interested parties, who will have to exercise the options available and to make the required selection.

9 Identification of versions

9.1 Purpose and context of identification

CC-data-elements conforming to a version of this International Standard are intended to form all or part of a composite unit of coded information that is interchanged between an originator and a recipient. The identification of the version of this International Standard that has been adopted by the originator shall also be available to the recipient. The route by which such identification is communicated to the recipient is outside the scope of this International Standard.

However, some standards for interchange of coded information may permit, or require, that the coded representation of the identification applicable to the CC-data-elements forms a part of the interchanged information. This clause specifies a coded representation for the identification of a version of this International Standard. Such coded representations form all or part of an identifiying data element, which may be included in information interchange in accordance with the relevant standard.

9.2 Identification of a version

The identification of a version of this International Standard shall comprise a set of identifications, one for the C0 set and G0 set that constitute the version. Each identification in the set shall consist of a designating escape sequence of the type shown below.

ESC 2/1 F shall identify the C0 set.
ESC 2/8 F shall identify the G0 set.

The final byte F of these escape sequence shall be obtained from the International Register ISO 2375. If the C0 set is empty, the identification shall be the same escape sequence in which the final byte F is 7/14.

The IRV shall be identified by the following escape sequences:

For the C0 set, if provided, by Registration ISO IR No. 1 : ESC 2/1 4/0

For the C0 set, if not provided, by ESC 2/1 7/14

For the G0 set by Registration ISO IR No. 6 : ESC 2/8 4/2

10 Explanation of Code tables No. 4 and No. 5

Table 4 is the basic 7-bit code table. It shows the 7-bit coded character set specified in clause 5 and indicates the options related to alternative graphic characters (6.4.2) and national or application-oriented use (6.4.3).

Bit combinations 0/0 to 1/15 are reserved for control characters and are shown empty. Bit combinations 2/0 to 7/15 represent a graphic symbol, an acronym, or a reference to a clause of this International Standard. A reference to 6.4.2 and 6.4.3 is denoted by (1) or (2) , respectively.

Table 5 is a code table showing a version which includes the G0 set of the IRV and no C0 set.

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Table 4 - Basic code table

b7	0	0	0	0	1	1	1	1
b6	0	0	1	1	0	0	1	1
b5	0	1	0	1	0	1	0	1
b4 b3 b2 b1	0	1	2	3	4	5	6	7
0 0 0 0	0			SP	0	②	P	②	p
0 0 0 1	1			!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3			# ① £	3	C	S	c	s
0 1 0 0	4			¤ ① $	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7			'	7	G	W	g	w
1 0 0 0	8			(	8	H	X	h	x
1 0 0 1	9			)	9	I	Y	i	y
1 0 1 0	10			*	:	J	Z	j	z
1 0 1 1	11			+	;	K	②	k	②
1 1 0 0	12			,	<	L	②	l	②
1 1 0 1	13			-	=	M	②	m	②
1 1 1 0	14			.	>	N	②	n	②
1 1 1 1	15			/	?	O	_	o	DEL

C0 Set

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Table 5 - Version with the G0 set of the IRV

b7	0	0	0	0	1	1	1	1
b6	0	0	1	1	0	0	1	1
b5	0	1	0	1	0	1	0	1
	0	1	2	3	4	5	6	7
b4 b3 b2 b1								
0 0 0 0	0		SP	0	@	P	`	p
0 0 0 1	1		!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3		#	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7		'	7	G	W	g	w
1 0 0 0	8		(	8	H	X	h	x
1 0 0 1	9		)	9	I	Y	i	y
1 0 1 0	10		*	:	J	Z	j	z
1 0 1 1	11		+	;	K	[	k	{
1 1 0 0	12		,	<	L	\	l	|
1 1 0 1	13		-	=	M	]	m	}
1 1 1 0	14		.	>	N	^	n	~
1 1 1 1	15		/	?	O	_	o	DEL

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Annex A

(normative)

Specification of the C0 set

A.1 C0 set of a version of ISO/IEC 646

The C0 set of a version of ISO/IEC 646 shall be a sub-set of the C0 set of ISO/IEC 6429. The selected control functions shall be used according to their definitions in ISO/IEC 6429. Bit combinations corresponding to control functions not selected shall be declared unused.

A.2 C0 set of the IRV

If the C0 set of the International Reference Version (IRV) is used, it shall be the C0 set of ISO/IEC 6429.

A.3 Table A.1

Table A.1 shows, for convenience, the C0 set of ISO/IEC 6429. For the definition of these control functions see ISO/IEC 6429.

Table A.1 - C0 set of ISO/IEC 6429

b7				0	0
b6				0	0
b5				0	1
				0	1
b4	b3	b2	b1		
0	0	0	0	0	NUL	DLE
0	0	0	1	1	SOH	DC1
0	0	1	0	2	STX	DC2
0	0	1	1	3	ETX	DC3
0	1	0	0	4	EOT	DC4
0	1	0	1	5	ENQ	NAK
0	1	1	0	6	ACK	SYN
0	1	1	1	7	BEL	ETB
1	0	0	0	8	BS	CAN
1	0	0	1	9	HT	EM
1	0	1	0	10	LF	SUB
1	0	1	1	11	VT	ESC
1	1	0	0	12	FF	IS4
1	1	0	1	13	CR	IS3
1	1	1	0	14	SO	IS2
1	1	1	1	15	SI	IS1

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Annex B

(informative)

Guidelines for standards derived from ISO/IEC 646

B.1 General

When drafting national or application-orientated standards based on ISO/IEC 646, it is recommended that the following considerations be taken into account.

B.2 Structure of a standard

It is recommended that the same structure and editorial style as implemented for ISO/IEC 646 be adopted. All facilities, restrictions and specifications of the standard should be stated clearly in sentences using plain language, rather than being summarized in tables with notes.

B.2.1 Control functions

The standard should contain the selection of control characters from the C0 set of ISO/IEC 6429 and an explicit description of the corresponding control functions. Even where the descriptions are identical with those of ISO/IEC 6429, they should be stated explicitly, and not merely by reference to ISO/IEC 6429. For application-oriented standards the specific meaning of the Information Separators and of the Device Controls should be defined.

B.2.2 Graphic characters (see 8.3.3)

Where there is no need for particular characters, the graphic characters of the International Reference Version (IRV) should be allocated to the same bit combinations and with the same names as in ISO/IEC 646.

B.2.3 Composite graphic characters and repertoire

ISO/IEC 646 permits the construction of composite graphic characters by using the control characters BACKSPACE and CARRIAGE RETURN to image two or more graphic characters at the same character position.

The total number of graphic characters which can be obtained from any version of the character set, with or without using this facility, is called the repertoire. ISO/IEC 646 does not define a particular repertoire. However, as the interpretation and/or the imaging of composite characters may cause difficulties, agreement between sender and recipient of the data may be required. To minimize the need for such agreements and to facilitate interchange, national or application-oriented standards may specify a standard repertoire of graphic characters which permit only a limited number of composite graphic characters. Such limitations are considered fully compatible with ISO/IEC 646.

B.2.4 Versions

In a standard, one or more versions can be specified. It should be noted that a version is not a standard but only part of a standard. The standard itself consists of the C0 set and the well-defined version or versions and a set of clauses as mentioned above. The definition of a version requires that the options mentioned in 8.1 be properly exercised.

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Annex C

(informative)

Differences between the second edition (1983) and the present (third) edition of this International Standard

C.1 The new text for the conformance clause adopted by JTC1/SC2 for all code standards has been introduced.

C.2 The wording of all definitions has been aligned with that of ISO/IEC 4873 and ISO/IEC 10538.

C.3 In the G0 set of the IRV the character DOLLAR SIGN replaces the character CURRENCY SIGN in position 2/4. Otherwise this G0 set is unchanged.

C.4 The requirements for the C0 set have been relaxed. The sole requirement is that the C0 set be a subset of the C0 set of the second edition of this International Standard. This C0 set is shown in normative annex A. For the definitions of the 32 control characters reference is made to ISO/IEC 6429.

As a consequence the Basic Code Table (table 4) and table 5 showing a version of ISO/IEC 646 with the G0 set of the IRV do not show any specific control characters in columns 0 and 1.

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