ECMA

European Computer Manufacturers Association

ECMA STANDARD

for a

6 Bit Input/Output Character Code

March 1963

ECMA

European Computer Manufacturers Association

ECMA STANDARD

for a

6 Bit Input/Output Character Code

March 1963

BRIEF HISTORY

A Technical Committee of ECMA met for the first time in December 1960, to prepare standard codes for Input-Output purposes.

Representatives of the following companies participated in the work of the committee :—

A.E.I. Ltd
Compagnie des Machines Bull
E.M.I. Electronics Ltd
N. V. Electrologica
English Electric Co. Ltd
Facit Electronics A. B.
Ferranti Ltd
IBM-WTEC
I. C. T. Ltd
I. T. T. Europe Inc.
Leo Computers Ltd
National Cash Register Company Ltd, representing
Elliott Bros. (London) Ltd
Ing. C. Olivetti & Co. S.p.A.
S. E. A.
Siemens & Halske AG.
Telefunken G.m.b.H.

The work has led to the production of this, the first ECMA Standard on Input and Output Codes. In addition, this Technical Committee has collaborated with the following organisations :

American Standards Association
International Organization for Standardization

This Code has been adopted as a Standard by the General Assembly of ECMA on March 29, 1963.

INTRODUCTION

1. The table in this standard presents a character set for general usage and includes letters, figures, punctuation marks, special symbols and controls, with their coded representations.

2. This coded character set may be used for the interchange of information among data processing systems and associated equipment. It may be regarded as a basic alphabet in the abstract sense.

3. This basic alphabet may be implemented in various media. For example, this could include transmission systems, punched tape and magnetic tape, and thus permit interchange of data to take place either indirectly by means of an intermediate recording in a continuous physical medium, or by local electrical connection of these various units (such as input and output devices and computers) or by means of data transmission equipment.

4. In the preparation of this character set, the requirements for graphics and controls in data handling and programming, in accordance with computer and ancillary equipment characteristics, have been taken into account.

5. This character set is the first of a family of sets. Higher-order sets will enlarge the repertoire for both " graphics " and " controls ".

6. The means of implementing this code for transmission, for recording on physical media, and taking into account the need for error checking will be the subject of future standards.

7. This code is not intended to be used as a punched cards standard.

Character code for data interchange among data processing systems

								0	0	1	1
								0	1	0	1
b_6	b_5	b_4	b_3	b_2	b_1	**Column** Row		0	1	2	3
0	0	0	0			0		F_0 Space	0	Null	P
0	0	0	1			1		F_1 (HT)	1	A	Q
0	0	1	0			2		F_2 (LF) ①	2	B	R
0	0	1	1			3		F_3 (VT)	3	C	S
0	1	0	0			4		F_4 (FF)	4	D	T
0	1	0	1			5		F_5 (CR) ①	5	E	U
0	1	1	0			6		SO	6	F	V
0	1	1	1			7		SI	7	G	W
1	0	0	0			8		(	8	H	X
1	0	0	1			9		)	9	I	Y
1	0	1	0			10		*	: ② ②a	J	Z
1	0	1	1			11		+	; ②	K	④ | [
1	1	0	0			12		, (Comma)	< or CS ③	L	④ or \ ⑤
1	1	0	1			13		−	= or % ③	M	④ |]
1	1	1	0			14		.	> or & ③	N	Escape
1	1	1	1			15		/	? or ' ③	O	Delete

EXPLANATORY LEGEND

CR   Carriage Return

CS   Currency Sign — For example : £, $, etc.

F   Function

FF   Form Feed

HT   Horizontal Tabulate

LF   Line Feed

NL   New Line

SI   Shift-in

SO   Shift-out

VT   Vertical Tabulate

NOTES ON THE TABLE

①   The controls CR and LF are intended for printer equipment which requires separate combinations to return the carriage and feed a line.

As an alternative, for equipment which uses a single combination for a combined carriage-return and line-feed operation (called New-Line), NL will be coded at F2. Then F5 will be regarded as a Spare Control.

If the latter type of equipment has to inter-work with the former, it may be necessary to take steps to introduce the CR character.

②   If 10 and 11 as single characters are needed (for example, for Sterling currency), they should take the place of : and ; respectively.

②a If quotation mark is required, it should take the place of colon.

③   Either of the two alternative symbols shown in each of these positions in the Table may be chosen; but this requires agreement between sender and recipient of data.

④   In those countries in which the alphabet includes more than 26 letters, but no more than 29, the positions indicated by ④ may be occupied by the additional characters of the extended alphabet.

⑤   If a 2nd currency sign is required, it should take the place of \ .

*   *   *

The sequence of bit-numbers shown (b_1, b_2, ...) corresponds to the normal binary weighting sequence and does not necessarily imply the sequence of use in media or on transmission lines.

6

EXPLANATORY COMMENTS ON THE CODE TABLE

These explanatory comments are not part of the Standard as such, but contribute to the understanding of the Table.

The generalised controls (F), have specific meanings shown against them in parentheses. These show the use of the controls in character-by-character printer equipment. In other types of equipment, different but related meanings may be associated with certain of these generalised controls, but this requires agreement between sender and recipient of data.

The following notes refer to items in the order in which they appear in the table:

F   A functional character which may have the combined or alternative meanings of a Format Effector or an Information Separator.
A Format Effector is a functional character which controls the layout or positioning of data in input/output media.
An Information Separator is a functional character used to separate and qualify data in a logical sense. A group of these characters is intended to be used in a hierarchical order.

Space   A non-printing graphic character normally used to separate words. It is also a Format Effector. The use of this character causes the printing position to move one position horizontally.

HT   Horizontal Tabulate. A Format Effector, the use of which starts the horizontal movement of the printing position. The position at which this movement stops is determined under separate control.

LF   Line Feed. A Format Effector which controls the movement of the printing position to the next printing line.

VT   Vertical Tabulate. A Format·Effector, the use of which starts the vertical movement of the printing position. The position at which this movement stops is determined under separate control.

FF   Form Feed. A Format Effector which controls the movement of the printing position to the first printing line on the next form.

CR   Carriage Return. A Format Effector which controls the movement of the printing position to the first printing position on the *same* printing line.

NL   New Line. A Format Effector which controls the movement of the printing position to the first printing position of the *next* printing line.

SO and SI   Shift-out and Shift-in. The Shift-out character means that the characters which follow shall be interpreted as outside the normal set of characters until a Shift-in character is reached. The Shift-in character means that the characters which follow shall be interpreted as within the normal set of characters.

CS   Currency Symbol. The use of this character may vary from country to country. Its precise meaning requires agreement between sender and recipient of data.

Null   A character which may be inserted into or deleted from a stream of data without affecting the information content of that stream (i.e. without affecting either the message or its layout or the control of equipment).

Escape   A functional character which may be used for extension of the standard character set of the code by changing the meaning of the next single following character. The precise meaning of this following character therefore requires prior agreement between sender and recipient of data. The single character which follows Escape may be interpreted as a graphic or control character not included in the standard set.
            Alternatively, the meaning of this single character may be " Go into code X and stay in it ". Used in this way, the pair of characters has had the effect of causing a locking shift to occur.

Delete   This character is used to cancel erroneous data. Its precise meaning requires agreement between sender and recipient of data.