

# ECMA

EUROPEAN COMPUTER MANUFACTURERS ASSOCIATION

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STANDARD ECMA-25  
FOR THE  
REPRESENTATION OF 8 BIT  
COMBINATIONS ON 12 ROW  
PUNCHED CARDS

June 1970

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## BRIEF HISTORY

On June 12, 1969, ECMA adopted their Standard ECMA-20 which defines a representation of the 128 characters of the ECMA 7 Bit Coded Character Set (Standard ECMA-6) on Punched Cards. This Standard ECMA-25 is an extension of Standard ECMA-20 to 256 8 bit combinations.

On June 25, 1970, this Standard ECMA-25 was adopted by the General Assembly of ECMA.

ECMA STANDARD FOR THE REPRESENTATION OF  
8 BIT COMBINATIONS ON 12 ROW PUNCHED CARDS

1. GENERAL

1.1 Scope

The present Standard ECMA-25 specifies the representation of 256 8 bit combinations on 12 row punched cards. This representation associates bit combinations with hole-patterns; it does not define the content or structure of an 8 bit code.

It does not specify any redundancy nor does it define techniques for error control.

1.2 Field of application

This Standard is intended for the general interchange of information among data processing systems, when using 12 Row Punched Cards.

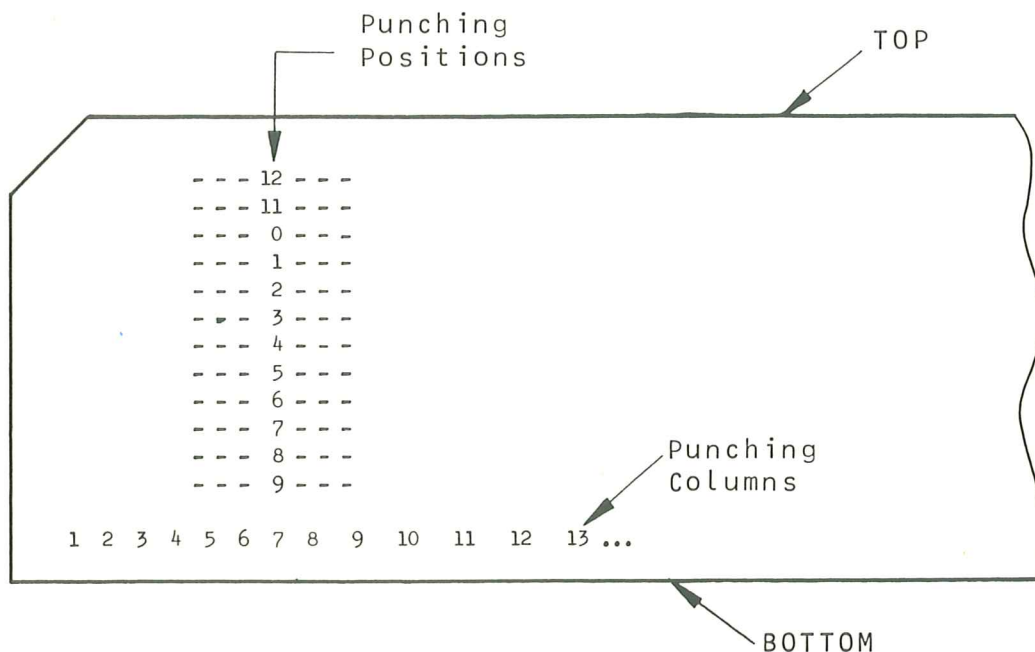
1.3 Punched cards

A punched card as referred to in this Standard is a document in which characters are represented in successive columns, each column having twelve possible punching positions designated 12, 11, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 (see Fig. I).

This Standard does not define the number of columns in a card, nor the shape of the holes punched in a card, nor any of its other physical characteristics.

Fig. 1

LAYOUT OF PUNCHING POSITIONS



2. SPECIFICATION

In a card each 8 bit combination is represented by a hole pattern in a single column. The 256 hole patterns are the possible arrangements of 12, 11, 0, 8 and 9 (incl. No Punch) on the one hand and only one of No Punch, 1, 2, 3, 4, 5, 6 or 7 on the other hand.

Table 1 specifies the card hole-patterns representing each an 8 bit combination.

The columns and rows are numbered in binary and decimal notation. Anyone position in Table 1 is identified by its column and row number (e.g. 06/11), or by the corresponding bit combination (e.g. 0110 1011).

The entries in the table are card hole-patterns. A single hole-pattern (such as 12-11-2 in position 06/11) is punched in a single column of the punched card.

The hole-patterns shown in the first half of the table (i.e. columns 00 to 07) are identical to the hole-patterns specified in Standard ECMA-20 for the Implementation of the ECMA 7-bit Coded Character Set on Punched Cards.

**TABLE 1**  
**CARD HOLE-PATTERN ASSIGNED TO 8 BIT COMBINATIONS**

Column	Row	$b_8$	$b_7$	$b_6$	$b_5$	$b_4$	$b_3$	$b_2$	$b_1$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
0	0	0	0	0	0	0	0	0	0	12-0 9-8-1	no punch	0	0	0	0	0	0	11-0 9-8-1	12-11-0 9-8-1	12-0 9-1	12-11 9-8	12-11-0 9-6	12-11 8-7	12-11-0 8	12-11 9-8-4
0	0	0	0	0	0	0	0	1	0	11 9-1	12 8-7	1	12-1 1	12-0 1	11-8 11-8	12-0 1	12-11 8	0-9-1 9-2	12-0 9-2	11 8-1	12-11-0 9-7	12-11 8-1	12-11-0 9	12-11 9-8-5	
0	0	0	0	0	0	0	1	0	0	11 9-2	8-7	2	12-2 2	12-0 2	11-9 11-9	12-0 2	12-11 9	0-9-2 9-3	12-0 9-3	11-0 9-2	12-11-0 9-8	11-0 8-2	12-11-0 8-2	12-11 9-8-6	
0	0	0	0	0	0	0	1	0	1	11 9-3	8-3	3	12-3 3	12-0 3	0-2 0-2	12-0 3	11-0 2	0-9-3 9-4	12-0 9-4	11-0 9-3	12-0 8-1	12-11-0 8-3	12-11-0 8-3	12-11 9-8-7	
0	0	0	0	0	0	1	0	0	0	9-8-4 9-7	11 8-3	4	12-4 4	12-0 4	0-3 0-3	12-0 4	11-0 3	0-9-4 9-5	12-0 9-5	11-0 9-4	12-0 8-2	12-11-0 8-4	12-11-0 8-4	11-0 9-8-2	
0	0	0	0	0	1	0	0	0	0	0-8-5 9-8-5	0 8-4	5	12-5 5	12-0 5	0-4 0-4	12-0 5	11-0 4	11 9-5	12-0 9-6	11-0 9-5	12-0 8-3	12-11-0 8-5	12-11-0 8-5	11-0 9-8-3	
0	0	0	0	1	0	0	0	0	0	9-8-6 9-2	12	6	12-6 6	12-0 6	0-5 0-5	12-0 6	11-0 5	12 9-6	12-0 9-7	11-0 9-6	12-0 8-4	12-11-0 8-6	12-11-0 8-6	11-0 9-8-4	
0	0	0	1	0	0	0	0	0	0	0 9-8-7 9-6	8-5 12	7	12-7 7	12-0 7	0-6 0-6	12-0 7	11-0 6	11 9-7	12-0 9-8	11-0 9-7	12-0 8-5	12-11-0 8-7	12-11-0 8-7	11-0 9-8-5	
0	0	0	0	0	0	1	0	0	0	11 9-8	12 8-5	8	12-8 8	12-0 8	0-7 0-7	12-0 8	11-0 7	0-9-8 9-8	12 8-1	11-0 9-8	12-0 8-6	12-11-0 8-1	12-0 9-8-2	11-0 9-8-6	
0	0	0	0	0	1	0	0	0	0	11 9-8-1 9-5	11 8-5	9	12-9 9	12-0 9	0-8 0-8	12-0 9	11-0 8	0 9-8-1	12-11 9-1	0-8-1 9-7	12-0 8-7	12-11-0 1	12-11-0 9-8-3	11-0 9-8-7	
0	0	0	1	0	0	0	0	0	0	0 9-8-7 9-7	11 8-4	8-2	11-1 8-2	12-11 1	0-9 8-2	12-11 1	11-0 9	0 9-8-2	12-11 9-2	12-11-0 9-1	12-0 8-7	12-11-0 2	12-11-0 9-8-4	12-11-0 9-8-2	
0	0	0	1	0	0	0	1	0	0	12 9-8-3 9-5	12 8-6	11 8-6	11-2 8-6	12-11 2	12 8-2	12-11 2	12-0 9-8-3	0 9-8-3	12-11 9-3	12-11-0 9-1	12-0 8-7	12-11-0 3	12-11-0 9-8-5	12-11-0 9-8-3	
0	0	0	1	0	0	1	0	0	0	11 9-8-4 9-8-5	0 8-3	12 8-4	11-3 8-4	12-11 3	0 8-2	12-11 3	12-11 9-8-4	0 9-8-4	12-11 9-4	12-11-0 9-2	12-0 8-7	12-11-0 4	12-11-0 9-8-6	12-11-0 9-8-4	
0	0	0	1	0	1	0	0	0	0	11 9-8-5	11	8-6	11-4 8-6	12-11 4	11 8-2	12-11 4	11-0 9-8-1	12 9-4	12-11 9-5	12-11-0 9-3	12-11-0 8-4	12-11-0 5	12-11-0 9-8-7	12-11-0 9-8-5	
0	0	0	1	0	1	0	0	0	0	11 9-8-6 9-8-6	11 8-3	0 8-6	11-5 8-7	12-11 5	11 8-7	12-11 5	11-0 1	12 9-6	12-11 9-6	12-11-0 9-4	12-11-0 8-5	12-11-0 6	12-11-0 9-8-2	12-11-0 9-8-6	
0	0	0	1	0	1	1	0	0	0	11 9-8-7	0-1	0 8-7	11-6 8-5	12-11 6	0 8-5	12-11 6	12 9-7	11 9-8-3	12-11 9-7	12-11-0 9-5	12-11-0 8-6	12-11-0 7	12-11-0 9-8-3	12-11-0 9-8-7	

APPENDIX

8 BIT COMBINATIONS ASSIGNED TO CARD HOLE-PATTERNS

For ease of reference and with a view to helping the reader, the correspondence defined in Table 1 between 256 8 bit combinations and 256 hole-patterns is shown hereafter in another form in Table 2.

The layout of Table 2 is as follows :

- the columns, the left half of the rows, and the right half of the rows are labelled with card hole-patterns;
- the entries in the table represent the column/row position of a bit combination in a 16 by 16 matrix for an abstract 8 bit set table.

Example: The card hole-pattern 12-11-2 corresponds to position 06/11 of such an abstract 8 bit set table.



TABLE 2

8 BIT COMBINATIONS ASSIGNED TO CARD HOLE-PATTERNS

DIGIT PUNCHES	ZONES PUNCHES				ZONES PUNCHES				DIGIT PUNCHES
	12	11	0		12	11	11	12	
	02/6	02/13	03/0	02/0	07/11	07/12	07/13	11/10	
1	04/1	04/10	02/15	03/1	06/1	06/10	07/14	13/9	
2	04/2	04/11	05/3	03/2	06/2	06/11	07/3	13/10	
3	04/3	04/12	05/4	03/3	06/3	06/12	07/4	13/11	
4	04/4	04/13	05/5	03/4	06/4	06/13	07/5	13/12	
5	04/5	04/14	05/6	03/5	06/5	06/14	07/6	13/13	
6	04/6	04/15	05/7	03/6	06/6	06/15	07/7	13/14	
7	04/7	05/0	05/8	03/7	06/7	07/0	07/8	13/15	
8	04/8	05/1	05/9	03/8	06/8	07/1	07/9	14/0	
9	04/9	05/2	05/10	03/9	06/9	07/2	07/10	14/1	
8-2	05/11	05/13	05/12	03/10	12/4	12/11	13/2	14/2	
8-3	02/14	02/4	02/12	02/3	12/5	12/12	13/3	14/3	
8-4	03/12	02/10	02/5	04/0	12/6	12/13	13/4	14/4	
8-5	02/8	02/9	05/15	02/7	12/7	12/14	13/5	14/5	
8-6	02/11	03/11	03/14	03/13	12/8	12/15	13/6	14/6	
8-7	02/1	05/14	03/15	02/2	12/9	13/0	13/7	14/7	
	10/8	11/1	11/9	06/0	12/3	12/10	13/1	13/8	8-1
	00/1	01/1	08/1	09/1	10/0	10/9	09/15	11/11	9-1
	00/2	01/2	08/2	01/6	10/1	10/10	11/2	11/12	9-2
	00/3	01/3	08/3	09/3	10/2	10/11	11/3	11/13	9-3
	09/12	09/13	08/4	09/4	10/3	10/12	11/4	11/14	9-4
	00/9	08/5	00/10	09/5	10/4	10/13	11/5	11/15	9-5
	08/6	00/8	01/7	09/6	10/5	10/14	11/6	12/0	9-6
	07/15	08/7	01/11	00/4	10/6	10/15	11/7	12/1	9-7
	09/7	01/8	08/8	09/8	10/7	11/0	11/8	12/2	9-8
	08/13	01/9	08/9	09/9	00/0	01/0	08/0	09/0	9-8-1
	08/14	09/2	08/10	09/10	14/8	14/14	15/4	15/10	9-8-2
	00/11	08/15	08/11	09/11	14/9	14/15	15/5	15/11	9-8-3
	00/12	01/12	08/12	01/4	14/10	15/0	15/6	15/12	9-8-4
	00/13	01/13	00/5	01/5	14/11	15/1	15/7	15/13	9-8-5
	00/14	01/14	00/6	09/14	14/12	15/2	15/8	15/14	9-8-6
	00/15	01/15	00/7	01/10	14/13	15/3	15/9	15/15	9-8-7

