ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 2021

INFORMATION PROCESSING

REPRESENTATION OF 8-BIT PATTERNS

ON 12-ROW PUNCHED CARDS

1st EDITION

May 1971

BRIEF HISTORY

The ISO Recommendation R 2021, *Information processing – Representation of 8-bit patterns on 12-row punched cards*, was drawn up by Technical Committee ISO/TC 97, *Computers and information processing*, the Secretariat of which is held by the American National Standards Institute (ANSI).

Work on this question led to the adoption of Draft ISO Recommendation No. 2021, which was circulated to all the ISO Member Bodies for enquiry in June 1970. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Greece	Sweden
Belgium	Italy	Switzerland
Brazil	Japan	Thailand
Canada	Netherlands	U.A.R.
Czechoslovakia	New Zealand	United Kingdom
Denmark	Portugal	U.S.A.
France	South Africa, Rep. of	
Germany	Spain	

No Member Body opposed the approval of the Draft.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommendation	R 2021	May 1971

INFORMATION PROCESSING

REPRESENTATION OF 8-BIT PATTERNS

ON 12-ROW PUNCHED CARDS

1. SCOPE

This ISO Recommendation specifies the representation of 8-bit patterns on 12-row punched cards. This representation associates bit-patterns with hole-patterns; it does not define the contents or structure of an 8-bit code.

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

2. REFERENCES

Punched cards

The 12-row punched cards to be used, the number of columns in a card and the physical characteristics are specified in ISO Recommendations R 1681, *Information processing – Specifications for unpunched paper cards*, and R 1682*, *Information processing – Dimensions and location of rectangular punched holes in 80 columns punched paper cards*.

In such cards, 8-bit patterns are represented by hole-patterns in successive columns, each column having twelve possible punching positions designated 12, 11, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

3. SPECIFICATION

Table 1 specifies the hole-pattern assigned to each 8-bit pattern.

The heading for the columns and rows are identified by numbers written in binary and decimal notations. Any one position in the Table may be identified by its column and row number (for example, 06/11), or by the corresponding bit combination (for example, 0110 1011).

The entries in the Table are those defined in section 2. The hole-patterns specified in the first half of the Table (i.e. columns 00 to 07 inclusive) are identical to the hole patterns specified in ISO Recommendation R 1679, *Representation of ISO 7-bit coded character set on 12-row punched cards*.

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*   At present at the stage of Draft ISO Recommendation.

TABLE 1 — Card hole-pattern assigned to 8-bit patterns

Note: This is a 16 × 16 lookup table. The column bit-pattern (b5–b8) heads each of columns 00–15; the row bit-pattern (b1–b4) identifies each of rows 0–15. Two-line cell entries are shown here separated by "/". Some cells crossed by the diagonal watermark are partially obscured and are transcribed as best read.

column →	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
b5	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
b6	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
b7	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
b8	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1

row (b1 b2 b3 b4)	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
0 (0000)	12-0 / 9-8-1	12-11 / 9-8-1	NO PUNCH	0	8-4	11-7	8-1	12-11-7	11-0 / 9-8-1	12-11-0 / 9-8-1	12-0 / 9-1	12-11 / 9-8	12-11-0 / 9-6	12-11-0 / 8-7	12-11-0 / 8	12-11-0 / 9-8-4
1 (1000)	12-9-1	11-9-1	12-8-1	1	12-1	11-8	12-0-1	12-11-8	0-9-1	9-1	12-0 / 9-2	11-8-1	12-11-0 / 9-7	11-0 / 8-1	12-11-0 / 9	12-11 / 9-8-5
2 (0100)	12-9-2	11-9-2	8-7	2	12-2	11-9	12-0-2	12-11-9	0-9-2	11 / 9-8-2	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
3 (1100)	12-9-3	11-9-3	8-3	3	12-3	0-2	12-0-3	11-0-2	0-9-3	9-3	12-0 / 9-4	11-0 / 9-3	12-0 / 8-1	11-0 / 8-3	12-11-0 / 8-3	12-11 / 9-8-7
4 (0010)	9-7	9-8-4	11-8-3	4	12-4	0-3	12-0-4	11-0-3	0-9-4	9-4	12-0 / 9-5	11-0 / 9-4	12-0 / 8-2	11-0 / 8-4	12-11-0 / 8-4	12-11-0 / 9-8-2
5 (1010)	0 / 9-8-5	9-8-5	0-8-4	5	12-5	0-4	12-0-5	11-0-4	11-9-5	9-5	12-0 / 9-6	11-0 / 9-5	12-0 / 8-3	11-0 / 8-5	12-11-0 / 8-5	12-11-0 / 9-8-3
6 (0110)	0 / 9-8-6	9-2	12	6	12-6	0-5	12-0-6	11-0-5	12-9-6	9-6	12-0 / 9-7	11-0 / 9-6	12-0 / 8-4	11-0 / 8-6	12-11-0 / 8-6	12-11-0 / 9-8-4
7 (1110)	0 / 9-8-7	0-9-6	8-5	7	12-7	0-6	12-0-7	11-0-6	11-9-7	12-9-7	12-0 / 9-8	11-0 / 9-7	12-0 / 8-5	11-0 / 8-7	12-11-0 / 8-7	12-11-0 / 9-8-5
8 (0001)	11-9-6	11-9-8	12-8-5	8	12-8	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
9 (1001)	12-9-5	11 / 9-8-1	11-8-5	9	12-9	0-8	12-0-9	11-0-8	9-8-1	12-9 / 9-8-3	12-11 / 9-1	0-8-1	12-0 / 8-7	12-11-0 / 1	12-0 / 9-8-3	11-0 / 9-8-7
10 (0101)	0-9-7	9-8-7	11-8-4	8-2	11-1	0-9	12-11-1	11-0-9	9-8-2	11-9-4	12-11 / 9-2	12-11-0 / 9-1	12-11 / 8-1	12-11-0 / 2	12-0 / 9-8-4	12-11 / 9-8-6
11 (1101)	12 / 9-8-3	11 / 9-8-4	12-8-6	11-8-6	11-2	12-8-2	12-11-2	11-0-1	9-8-3	9-8-6	12-11 / 9-3	12-11-0 / 9-2	12-11 / 8-2	12-11-0 / 3	12-0 / 9-8-5	12-11 / 9-8-2
12 (0011)	12 / 9-8-4	11 / 9-8-5	0-8-3	12-8-4	11-3	0-8-2	12-11-3	12-11-2	0 / 9-8-4	11-0 / 9-1	12-11 / 9-4	12-11-0 / 9-3	12-11 / 8-3	12-11-0 / 4	12-0 / 9-8-6	12-11 / 9-8-3
13 (1011)	12 / 9-8-5	11 / 9-8-6	11	8-6	11-4	11-8-2	12-11-4	12-11-3	12 / 9-8-1	11-9-4	12-11 / 9-5	12-11-0 / 9-4	12-11 / 8-4	12-11-0 / 5	12-0 / 9-8-7	12-11 / 9-8-4
14 (0111)	12 / 9-8-6	11 / 9-8-7	12-8-3	0-8-6	11-5	11-8-7	12-11-5	12-11-4	12 / 9-8-2	9-8-6	12-11 / 9-6	12-11-0 / 9-5	12-11 / 8-5	12-11-0 / 6	12-11 / 9-8-2	12-11 / 9-8-6
15 (1111)	12 / 9-8-7	11 / 9-8-7	0-1	0-8-7	11-6	0-8-5	12-11-6	12-9-7	11 / 9-8-3	11-0 / 9-1	12-11 / 9-7	12-11-0 / 9-6	12-11 / 8-6	12-11-0 / 7	12-11 / 9-8-3	12-11 / 9-8-7