

Appendix F. EBCDIC and ASCII-8 Charts

from X3.2.3/141
July 19, 1966

format ASA 300 code code

Obsolete
2/15/67

The numbering convention for the bit positions within a character differ for each of the codes. The conventions are:

Extended Binary-Coded-Decimal Interchange Code (EBCDIC)
The chart below shows bit positions, bit patterns, hole patterns (card), graphic characters, and control characters for EBCDIC. The hole patterns for the bit patterns indicated by circled numbers in the table are given at the bottom of the table.

EBCDIC 01234567
ASCII-8 76X54321

00		01		Bit Positions 0, 1				
00	01	10	11	Bit Positions 2, 3				
0000	NUI	DL	DS	SP	&	-		
0001	SOH	DEL	SOS					
0010	STX	DC1	FS					
0011	ETX	DC2						
0100	PF	RES	BYP	PN				
0101	HT	NL	LF	RS				
0110	LC	BS	ETB	EOB	UC			
0111	DEL	IL	ESC	PRE	EOT			
1000		CAN						
9	9	9	9	9	9	9	9	9
12	11	0		0	11	0	0	0

10		11		Bit Positions 0, 1				
00	01	10	11	Bit Positions 2, 3				
0000				9	10	11	12	8-1
0001	a	i		A	J	1		1
0010	b	k	s	B	K	S	2	2
0011	c	l	t	C	L	T	3	3
0100	d	m	u	D	M	U	4	4
0101	e	n	v	E	N	V	5	5
0110	f	o	w	F	O	W	6	6
0111	g	p	x	G	P	X	7	7
1000	h	q	y	H	Q	Y	8	8
1001	i	r	z	I	R	Z	9	9
12	12	11	12	12	11			
0	11	0	11	0		0		

Bit Positions 4, 5, 6, 7

Digit Patches

Bit Positions 4, 5, 6, 7

Digit Patches

00		01		Bit Positions 0, 1						
00	01	10	11	Bit Positions 2, 3						
1001		EM						15	8-1	
1010		CC	SM	¢	!	:			8-2	
1011	VT			-	\$	#			8-3	
1100	FF	FS	DC4	<	*	%	@		8-4	
1101	CR	LF	ENQ	(	)	'			8-5
1110	SΦ	RS	ACK	+	;	>	=		8-6	
1111	SI	CU1	CU2	CU3	SUB	|	~	?	"	8-7
9	9	9	9	12	11			0		
12	11	0		0		0		0		

10		11		Bit Positions 0, 1					
00	01	10	11	Bit Positions 2, 3					
1010									8-2
1011	{	}							8-3
1100									8-4
1101	[	]							8-5
1110									8-6
1111									8-7
12	12	11	12	12	12	11	12	11	11
0	11	0	11	0	11	0	11	0	0

- ① 12-0-9-8-1
- ② 12-11-9-8-1
- ③ 11-0-9-8-1
- ④ 12-11-0-9-8-1
- ⑤ No PUNCHES
- ⑥ 12
- ⑦ 11
- ⑧ 12-11-0
- ⑨ 12-0
- ⑩ 11-0
- ⑪ 0-8-2
- ⑫ 0
- ⑬ 0-1
- ⑭ 11-0-9-1
- ⑮ 12-11

EBCDIC chart explanation continued on next page.

EBCDIC chart explanation (continued)

Control Character

NUL	Null	BS	Backspace	EOB	End of Block
PF	Punch Off	IL	Idle	PRE	Prefix
HT	Horizontal Tab	CC	Cursor Control	SM	Set Mode
LC	Lower Case	CU2	Reserved for Customer Use	CU3	Reserved for Customer Use
DL	Delete	DS	Digit Select	PN	Punch On
CU1	Reserved for Customer Use	SOS	Start of Significance	RS	Reader Stop
TM	Tape Mark	FS	Field Separator	UC	Upper Case
RES	Restore	BYP	Bypass	EOT	End of Transmission
NL	New Line	LF	Line Feed	SP	Space

Special Graphic Characters

¢	Cent Sign	*	Asterisk	>	Greater-than Sign
.	Period, Decimal Point	)	Right Parenthesis	?	Question Mark
<	Less-than Sign	;	Semicolon	:	Colon
(	Left Parenthesis	~	Logical NOT	#	Number Sign
+	Plus Sign	-	Minus Sign, Hyphen	@	At Sign
|	Vertical Bar, Logical OR	/	Slash	'	Prime, Apostrophe
&	Amperсанд	,	Comma	=	Equal Sign
!	Exclamation Point	%	Percent	"	Quotation Mark
\$	Dollar Sign	_	Underscore		

Example	Type	Bit Pattern Bit Positions 01 23 4567	Hole Pattern	
			Zone Punches	Digit Punches
PF	Control Character	00 00 0100	12 -9	4
%	Special Graphic	01 10 1100	0	8 - 4
R	Upper Case	11 01 1001	11	9
a	Lower Case	10 00 0001	12 -0	1
	Control Character, function not yet assigned	00 11 0000	12 - 11 - 0 - 9	8 - 1

**American Standard Code for Information Interchange (ASCII)
Extended to Eight Bits**

Bit Positions → 76 → X5	00				01				10				11			
	00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
0000	NUL	DLE			SP	0					@	P			\	p
0001	SOH	DC1			!	1					A	Q			a	q
0010	STX	DC2			"	2					B	R			b	r
0011	ETX	DC3			#	3					C	S			c	s
0100	EOT	DC4			\$	4					D	T			d	t
0101	ENQ	NAK			%	5					E	U			e	u
0110	ACK	SYN			&	6					F	V			f	v
0111	BEL	ETB			'	7					G	W			g	w
1000	BS	CAN			(	8					H	X			h	x
1001	HT	EM			)	9					I	Y			i	y
1010	LF	SUB			*	:					J	Z			j	z
1011	VT	ESC			+	;					K	[			k	{
1100	FF	FS			,	<					L	\			l	|
1101	CR	GS			-	=					M	]			m	}
1110	SO	RS			.	>					N	~			n	~
1111	SI	US			/	?					O	_			o	DEL

Note: The structure of this code and the graphics in it are subject to future change as a result of current activities of committees under the auspices of the American Standards Association.