

## Appendix F. EBCDIC and ASCII-8 Charts

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

EBCDIC                      BIT POSITIONS  
ASCII-8                     01234567  
                                  76X54321

		00				01				Bit Positions 0, 1		
		00	01	10	11	00	01	10	11	Bit Positions 2, 3		
Bit Positions 4, 5, 6, 7	0000	①	②	③	④	SP	⑤	⑥	⑦	⑧	Digit Punctures	
	0001									⑬		1
	0010											2
	0011											3
	0100	PF	RES	BYP	PN							4
	0101	HT	NL	LF	RS							5
	0110	LC	BS	EOB	UC							6
	0111	DL	IL	PRE	EOT							7
	1000											8
		9	9	9	9	9	9	9	9			
		12	11	0		12	12	11	11			
						0	0	0	0			
		Zone Punctures										

**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.

		10				11				Bit Positions 0, 1	
		00	01	10	11	00	01	10	11	Bit Positions 2, 3	
Bit Positions 4, 5, 6, 7	0000					⑨	⑩	⑪	⑫		8-1
	0001	a	i			A	J	⑭	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	0			0			
		Zone Punctures									

		00				01				Bit Positions 0, 1	
		00	01	10	11	00	01	10	11	Bit Positions 2, 3	
Bit Positions 4, 5, 6, 7	1001										8-1
	1010		CC	SM		c	!	⑮	:		8-2
	1011					.	\$	,	#		8-3
	1100					<	*	%	@		8-4
	1101					(	)	-	'		8-5
	1110					+	;	>	=		8-6
	1111	CU 1	CU 2	CU 3			~	?	"		8-7
		9	9	9	9	12					
		12	11	0		12	11	0			
		Zone Punctures									

		10				11				Bit Positions 0, 1	
		00	01	10	11	00	01	10	11	Bit Positions 2, 3	
Bit Positions 4, 5, 6, 7	1010										8-2
	1011										8-3
	1100										8-4
	1101										8-5
	1110										8-6
	1111										8-7
			12	12	11	12	9	9	9	9	
		0	11	0	0	12	12	11	12		
						0	11	0	0		
		Zone Punctures									

- |                 |                |         |
|-----------------|----------------|---------|
| ① 12-0-9-8-1    | ⑤ No Punctures | ⑨ 12-0  |
| ② 12-11-9-8-1   | ⑥ 12           | ⑩ 11-0  |
| ③ 11-0-9-8-1    | ⑦ 11           | ⑪ 0-8-2 |
| ④ 12-11-0-9-8-1 | ⑧ 12-11-0      | ⑫ 0     |

- |            |
|------------|
| ⑬ 0-1      |
| ⑭ 11-0-9-1 |
| ⑮ 12-11    |

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
&	Amperand	,	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 4321	76				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.