

IBM Display Codes

The IBM PC uses an extended set of ASCII characters for its screen display. Table A.1 shows the ASCII characters. The control characters BS (backspace), HT (tab), CR (carriage return), ESC (escape), SP (space) correspond to the keys Backspace, Tab, Enter, Esc, and space bar; LF (line feed) advances the cursor to the next line, BEL (bell) sounds the beeper, and FF (form feed) advances the printer to the next page.

Table A.2 shows the extended set of 256 display characters. When a display code is written to the active page of the display memory, the corresponding character shows up on the screen. To write to the display memory, we can use INT 10h functions 9h, 0Ah, 0Eh, and 13h. The functions 9h and 0Ah write all values to the display memory. The functions 0Eh and 13h recognize the control character codes 07h (bell), 08h (backspace), 0Ah (line feed), and 0Dh (carriage return) and perform the control functions instead of writing these codes to the display memory.

Table A.1
ASCII Code

DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR
0	00		32	20	(SP)	64	40	@	96	60	'
1	01		33	21	|	65	41	A	97	61	a
2	02		34	22	"	66	42	B	98	62	b
3	03		35	23	#	67	43	C	99	63	c
4	04		36	24	\$	68	44	D	100	64	d
5	05		37	25	%	69	45	E	101	65	e
6	06		38	26	&	70	46	F	102	66	f
7	07	(BEL)	39	27		71	47	G	103	67	g
8	08	(BS)	40	28	(	72	48	H	104	68	h
9	09	(HT)	41	29	)	73	49	I	105	69	i
10	0A	(LF)	42	2A	*	74	4A	J	106	6A	j
11	0B		43	2B	+	75	4B	K	107	6B	k
12	0C	(FF)	44	2C	,	76	4C	L	108	6C	l
13	0D	(CR)	45	2D	-	77	4D	M	109	6D	m
14	0E		46	2E	.	78	4E	N	110	6E	n
15	0F		47	2F	/	79	4F	O	111	6F	o
16	10		48	30	0	80	50	P	112	70	p
17	11		49	31	1	81	51	Q	113	71	q
18	12		50	32	2	82	52	R	114	72	r
19	13		51	33	3	83	53	S	115	73	s
20	14		52	34	4	84	54	T	116	74	t
21	15		53	35	5	85	55	U	117	75	u
22	16		54	36	6	86	56	V	118	76	v
23	17		55	37	7	87	57	W	119	77	w
24	18		56	38	8	88	58	X	120	78	x
25	19		57	39	9	89	59	Y	121	79	y
26	1A		58	3A	:	90	5A	Z	122	7A	z
27	1B	(ESC)	59	3B	;	91	5B	[	123	7B	{
28	1C		60	3C	<	92	5C	\	124	7C	|
29	1D		61	3D	=	93	5D	]	125	7D	}
30	1E		62	3E	>	94	5E	^	126	7E	~
31	1F		63	3F	?	95	5F	_	127	7F	

Blank spaces indicate control characters that are not used on the IBM PC.

Table A.2
IBM Extended
Character Set

DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR
000	00	BLANK	026	1A	→	052	34	4	078	4E	N	104	68	h
001	01	☺	027	1B	←	053	35	5	079	4F	O	105	69	i
002	02	●	028	1C	└	054	36	6	080	50	P	106	6A	j
003	03	♥	029	1D	↔	055	37	7	081	51	Q	107	6B	k
004	04	♦	030	1E	▲	056	38	8	082	52	R	108	6C	l
005	05	♣	031	1F	▼	057	39	9	083	53	S	109	6D	m
006	06	♠	032	20	(SPACE) (SP)	058	3A	:	084	54	T	110	6E	n
007	07	●	033	21	!	059	3B	;	085	55	U	111	6F	o
008	08	■	034	22	"	060	3C	<	086	56	V	112	70	p
009	09	○	035	23	#	061	3D	=	087	57	W	113	71	q
010	0A	■	036	24	§	062	3E	>	088	58	X	114	72	r
011	0B	♂	037	25	%	063	3F	?	089	59	Y	115	73	s
012	0C	♀	038	26	&	064	40	@	090	5A	Z	116	74	t
013	0D	♪	039	27	'	065	41	A	091	5B	[	117	75	u
014	0E	♪	040	28	(	066	42	B	092	5C	\	118	76	v
015	0F	☼	041	29	)	067	43	C	093	5D	]	119	77	w
016	10	▶	042	2A	*	068	44	D	094	5E	^	120	78	x
017	11	◀	043	2B	+	069	45	E	095	5F	—	121	79	y
018	12	↑	044	2C	,	070	46	F	096	60	'	122	7A	z
019	13	!!	045	2D	—	071	47	G	097	61	a	123	7B	{
020	14	¶	046	2E	.	072	48	H	098	62	b	124	7C	|
021	15	§	047	2F	/	073	49	I	099	63	c	125	7D	}
022	16	▬	048	30	0	074	4A	J	100	64	d	126	7E	-
023	17	↓	049	31	1	075	4B	K	101	65	e	127	7F	△
024	18	↑	050	32	2	076	4C	L	102	66	f	128	80	Ç
025	19	↓	051	33	3	077	4D	M	103	67	g	129	81	ù

Table A.2
IBM Extended
Character Set

DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR	DEC	HEX	CHAR
130	82	é	156	9C	£	182	B6	⏏	208	D0	⏏	234	EA	⏏
131	83	à	157	9D	¥	183	B7	⏏	209	D1	⏏	235	EB	⏏
132	84	ã	158	9E	Pt	184	B8	⏏	210	D2	⏏	236	EC	∞
133	85	ä	159	9F	f	185	B9	⏏	211	D3	⏏	237	ED	⊘
134	86	á	160	A0	á	186	BA	⏏	212	D4	⏏	238	EE	€
135	87	ç	161	A1	í	187	BB	⏏	213	D5	⏏	239	EF	∩
136	88	ê	162	A2	ó	188	BC	⏏	214	D6	⏏	240	FO	∞
137	89	ë	163	A3	ù	189	BD	⏏	215	D7	⏏	241	F1	±
138	8A	è	164	A4	ñ	190	BE	⏏	216	D8	⏏	242	F2	≥
139	8B	ï	165	A5	∩	191	BF	⏏	217	D9	⏏	243	F3	≤
140	8C	í	166	A6	ä	192	C0	⏏	218	DA	⏏	244	F4	/
141	8D	ì	167	A7	ø	193	C1	⏏	219	DB	■	245	F5	∫
142	8E	Ā	168	A8	ℓ	194	C2	⏏	220	DC	■	246	F6	+
143	8F	Ā	169	A9	⏏	195	C3	⏏	221	DD	■	247	F7	-
144	90	É	170	AA	⏏	196	C4	--	222	DE	■	248	F8	°
145	91	æ	171	AB	1/2	197	C5	+	223	DF	■	249	F9	•
146	92	Æ	172	AC	1/4	198	C6	⏏	224	E0	⏏	250	FA	•
147	93	ø	173	AD	í	199	C7	⏏	225	E1	β	251	FB	√
148	94	ø	174	AE	«	200	C8	⏏	226	E2	∫	252	FC	n
149	95	ø	175	AF	»	201	C9	⏏	227	E3	π	253	FD	∞
150	96	ú	176	B0	⏏	202	CA	⏏	228	E4	Σ	254	FE	■
151	97	ú	177	B1	⏏	203	CB	⏏	229	E5	σ	255	FF	(SPACE) (SP)
152	98	ÿ	178	B2	■	204	CC	⏏	230	E6	μ			
153	99	ÿ	179	B3	|	205	CD	=	231	E7	τ			
154	9A	Û	180	B4	⏏	206	CE	⏏	232	E8	φ			
155	9B	ƒ	181	B5	⏏	207	CF	⏏	233	E9	⊖			

SP means space.