

1. Keyboard Table

DEC	HEX	ASCII DATA	CV KEY(S)	REPEAT	COMMENTS
0	00	NUL	cntrl 2	N	Null (substitute for cntrl e) Start of Heading Start of Text End of Text End of Transmission Enquiry Acknowledge Bell
1	01	SOH	cntrl A	N	
2	02	STX	cntrl B	N	
3	03	ETX	cntrl C	N	
4	04	END	cntrl D	N	
5	05	ENO	cntrl E	N	
6	06	ACK	cntrl F	N	
7	07	BEL	cntrl G	N	
8	08	RS	cntrl H or BACKSPACE	Y	Backspace (see NOTE 5) Horizontal Tabulation (see NOTE 6) Line Feed Vertical Tabulation Form Feed Carriage Return Shift Out Shift In
9	09	HT	cntrl I or TAB	N	
10	0A	LF	cntrl J	N	
11	0B	VT	cntrl K	N	
12	0C	FF	cntrl L	N	
13	0D	CR	cntrl M or RETURN	N	
14	0E	SO	cntrl N	N	
15	0F	SI	cntrl O	N	
16	10	DLE	cntrl P	N	Data Link Escape Device Control 1 Device Control 2 Device Control 3 Device Control 4 Negative Acknowledge Synchronous Idle End of Transmission Block
17	11	DC1	cntrl Q	N	
18	12	DC2	cntrl R	N	
19	13	DC3	cntrl S	N	
20	14	DC4	cntrl T	N	
21	15	NAK	cntrl U	N	
22	16	SYN	cntrl V	N	
23	17	ETB	cntrl W	N	
24	18	CAN	cntrl X	N	Cancel End of Medium Substitute Escape File Separator Group Separator Record Separator Unit Separator (substitute for cntrl _)
25	19	EM	cntrl Y	N	
26	1A	SUB	cntrl Z	N	
27	1B	ESC	cntrl [or WP/ESCAPE	N	
28	1C	FS	cntrl \	N	
29	1D	GS	cntrl]	N	
30	1E	RS	cntrl ^	N	
31	1F	US	cntrl 6	N	
32	20	SP	space bar	Y	Space Exclamation Point Quotation Marks (or double quotes) Number Sign Dollar Sign Percent Ampersand Apostrophe (or single quotes)
33	21	!	shift 1	Y	
34	22	"	shift 2	Y	
35	23	#	shift 3	Y	
36	24	\$	shift 4	Y	
37	25	%	shift 5	Y	
38	26	&	shift 7	Y	
39	27			Y	
40	28	(shift 9	Y	Opening Parenthesis Closing Parenthesis Asterisk plus Comma Hyphen (Minus) Period (Decimal point) Slant
41	29	)	shift 0	Y
42	2A	*	shift 8	Y	
43	2B	+	+	Y	
44	2C	,	,	Y	
45	2D	-	-	Y	
46	2E	.	.	Y	
47	2F	/	/	Y	

HEX	ASCII DATA	CV KEY(S)	REPE	COMMENTS
48	0	0		
49	1	1	Y	
50	2	2	Y	
51	3	3	Y	
52	4	4	Y	
53	5	5	Y	
54	6	6	Y	
55	7	7	Y	
56	8	8	Y	
57	9	9	Y	
58	:	shift :	Y	Colon
59	<	shift .	Y	Semicolon
60	=	shift +	Y	Less Than
61	>	shift -	Y	Equals
62	?	shift /	Y	Greater Than
63	@		Y	Question Mark
64	A	shift 2	Y	Commercial At
65	B	shift A	Y	upper case
66	C	shift B	Y	"
67	D	shift C	Y	"
68	E	shift D	Y	"
69	F	shift E	Y	"
70	G	shift F	Y	"
71	H	shift G	Y	"
72	I	shift H	Y	"
73	J	shift I	Y	"
74	K	shift J	Y	"
75	L	shift K	Y	"
76	M	shift L	Y	"
77	N	shift M	Y	"
78	O	shift N	Y	"
79	P	shift O	Y	"
80	Q	shift P	Y	"
81	R	shift Q	Y	"
82	S	shift R	Y	"
83	T	shift S	Y	"
84	U	shift T	Y	"
85	V	shift U	Y	"
86	W	shift V	Y	"
87	X	shift W	Y	"
88	Y	shift X	Y	"
89	Z	shift Y	Y	"
90	[	shift Z	Y	upper case
91	\	[	Y	Opening Bracket
92	]	\	Y	Reverse Slant
93	^	]	Y	Closing Bracket
94	_	^	Y	Circumflex
95	-	_	Y	Underline

HEX	ASCII DATA	CV KEY(S)	RE	COMMENTS
96	,	shift -	Y	Grave Accent
97	a	A	Y	lower case
98	b	B	Y	"
99	c	C	Y	"
100	d	D	Y	"
101	e	E	Y	"
102	f	F	Y	"
103	g	G	Y	"
104	h	H	Y	"
105	i	I	Y	"
106	j	J	Y	"
107	k	K	Y	"
108	l	L	Y	"
109	m	M	Y	"
110	n	N	Y	"
111	o	O	Y	"
112	p	P	Y	"
113	q	Q	Y	"
114	r	R	Y	"
115	s	S	Y	"
116	t	T	Y	"
117	u	U	Y	"
118	v	V	Y	"
119	w	W	Y	"
120	x	X	Y	"
121	y	Y	Y	"
122	z	Z	Y	lower case
123	[	shift [	Y	Opening Brace
124	\	shift \	Y	Vertical Line
125	]	shift]	Y	Closing Brace
126	~	shift ^	Y	Tilde
127	DEL	cntrl DELETE	Y	Delete (substitute for DEL)

** end of ASCII codes **

** Set of COLECO special codes (i.e. non-ASCII) defined by group **

a) SUFTKEY GROUP

DEC	HEX	CV KEY(S)	REPEAT	COMMENTS
128	80	HOME	N	group exception
129	81	I	N	softkey 1
130	82	II	N	softkey 2
131	83	III	N	softkey 3
132	84	IV	N	softkey 4
133	85	V	N	softkey 5
134	86	VI	N	softkey 6
135	87			unused code
136	88			unused code
137	89	shift I	N	
138	8A	shift II	N	
139	8B	shift III	N	
140	8C	shift IV	N	
141	8D	shift V	N	
142	8E	shift VI	N	
143	8F			unused code

b) WORD PROCESSOR "hard key" GROUP

DEC	HEX	CV KEY(S)	COMMENTS
144	90	WILD CARD	
145	91	UNDO	
146	92	MOVE	
147	93	STORE	
148	94	INSERT	
149	95	PRINT	
150	96	CLEAR	
151	97	DELETE	Independent function from ASCII delete (DEL)
152	98	shift WILD CARD	
153	99	shift UNDO	
154	9A	shift MOVE	
155	9B	shift STORE	(COPY)
156	9C	shift INSERT	(FETCH)
157	9D	shift PRINT	
158	9E	shift CLEAR	
159	9F	shift DELETE	Independent function from ASCII delete (DEL)

c) SOR CONTROL GROUP

DEC	HEX	CV KEY(S)	REPEAT	COMMENTS
160	A0	up arrow		
161	A1	right arrow	Y	north
162	A2	down arrow	Y	east
163	A3	left arrow	Y	south
164	A4	cntrl up arrow	Y	west
165	A5	cntrl right arrow	Y	
166	A6	cntrl down arrow	Y	
167	A7	cntrl left arrow	Y	
168	A8	up arrow + right arrow		
169	A9	right arrow + down arrow	Y	northeast - sequence independent, time critical
170	AA	down arrow + left arrow	Y	southeast - " " "
171	AB	left arrow + up arrow	Y	southwest - " " "
172	AC	HOME + up arrow	Y	northwest - sequence independent, time critical
173	AD	HOME + right arrow	N	sequence independent, time critical
174	AE	HOME + down arrow	N	" " "
175	AF	HOME + left arrow	N	" " "

d) GENERAL KEY GROUP

DEC	HEX	CV KEY(S)	COMMENTS
176	B0		unused code
177	B1		" "
178	B2		" "
179	B3		" "
180	B4		" "
181	B5		" "
182	B6		" "
183	B7		" "
184	B8		unused code
185	B9	Shift BACKSPACE	Y
186	BA	Shift TAB	N
187	BB		(see NOTE 5)
188	BC		(see NOTE 6)
189	BD		unused code
190	BE		" "
191	BF		" "
			unused code

** end of COLECO special codes defined by group **

** N 5 **

NOTE 1: The lock key will act as a "shift lock function," i.e., when in the active state (on) all keys will behave as if they were produced by their shifted key versions. Of course, where the lock key is inactive (off) all key depressions will be treated as normal unshifted key depressions. The foregoing description is analogous in operation to that of a standard keyboard.

NOTE 2: The remaining codes 0C0H thru 0EFH are unused codes.

NOTE 3: Codes 0F0H thru 0FFH are reserved for internal use by the keyboard software.

NOTE 4: The following keys have no code assigned to them, they are used internally by the keyboard software to calculate the key value, CNTRL, SHIFT and LOCK. No serial transmission occurs for these keys.

NOTE 5: Codes 008H and 088H are provided for purposes of non-destructive and destructive BACKSPACE. The interpretation of these codes are application dependent. It is recommended that the following convention be used:

008H = BACKSPACE (as defined by ASCII)
088H = destructive BACKSPACE

NOTE 6: Codes 009H and 089H are provided for purposes of right TAB and left TAB. The interpretation of these codes are application dependent. It is recommended that the following convention be used:

009H = right TAB (as defined by ASCII)
089H = left TAB

2. ADAM Emulation Considerations

ADAM hardware characteristics affect the selection and interface of an emulator for ADAM.

ADAM has dynamic RAMs that must be refreshed to maintain integrity. The RAMs require an 8-bit refresh. Since the Z80 performs a 7-bit refresh, the eighth bit is manufactured by the MIOC, using other signals from the Z80. In general, the signals are:

MREQ
M1
WAIT
REFRESH (RA0 - RA6)
A7

The Master 6801 performs a direct memory access into the 64K intrinsic RAM addressed by the Z80. The MIOC is responsible for the setup and execution of DMA by the Master 6801.

Some emulators place a load on the clock circuit that drives the Z80. Problems with an interface to an emulator may require a check of the clock and a modification to R60 on the CPU Board.