

## APPENDIX A - CP/M-80 BIOS CALLS FOR DATE AND TIME

The QX-10 implementation of CP/M-80 allows application programs to access and/or change the system time and date. These facilities are provided in the form of calls through an extended BIOS jump vector table. The routines are entered via a CALL instruction with the HL register set to the address of a seven-byte parameter area.

Address 45 (hexadecimal) in the BIOS table contains a jump instruction to a BIOS routine which retrieves the date and time. Set the HL registers to the address of a seven-byte area which is to receive the date and time information. Issue the following instruction to call the routine:

```
CALL    BIOS+45H
```

The routine will return the following information in BCD format:

Byte	Data
0	Day of Week (1-7)
1	Month (1-12)
2	Day of Month (1-31)
3	Year (0-99)
4	Hour (0-23)
5	Minute (0-59)
6	Second (0-59)

Address 48 (hexadecimal) in the BIOS table contains a jump instruction to a BIOS routine which will set the system date and time. Set the HL registers to the address of a seven-byte area which is to receive the date and time information. The layout of the seven-byte area is the same as described above. Issue the following instruction to call the routine:

```
CALL    BIOS+48H
```

Appendix B - TVI-920 Keyboard Code List  
(Supported features)

Function	Escape/Control Sequence	Decimal Code	Hex Code
Bell	CTRL G	7	07
Cursor Left / Backspace	CTRL H	8	08
Cursor Down / Linefeed	CTRL J	10	0A
Cursor Up / Rev Linefeed	CTRL K	11	0B
Cursor Right / Fwd space	CTRL L	12	0C
Home	CTRL ^	30	1E
Carriage Return	CTRL M	13	0D
Tab	CTRL I	9	09
Backtab	ESC I	27,73	1B,49
Start Half Intensity	ESC )	27,41	1B,29
End Half Intensity	ESC (	27,40	1B,28
Clear Screen	CTRL Z	26	1A
Clear All to Null	ESC *	27,42	1B,2A
Clear All to Space	ESC +	27,43	1B,2B
Character Insert	ESC Q	27,81	1B,51
Character Delete	ESC W	27,87	1B,57
Line Insert	ESC E	27,69	1B,45
Line Delete	ESC R	27,82	1B,52
End of Reverse Video	ESC k	27,107	1B,6B
Reverse Video	ESC j	27,106	1B,6A
Start Blink Field	ESC ^	27,94	1B,5E
Start Blank Field	ESC _	27,32	1B,5F
End Blink/Blank	ESC q	27,113	1B,71
Erase EOL with Spaces	ESC T	27,84	1B,54
Erase EOS with Spaces	ESC Y	27,89	1B,59
Erase EOL with Nulls	ESC t	27,116	1B,74
Erase EOS with Nulls	ESC y	27,121	1B,79
Lock Keyboard	ESC #	27,35	1B,23
Unlock Keyboard	ESC "	27,34	1B,22
Load Cursor (row,col) *	ESC,=,r,c	27,61,r,c	1B,3D,r,c

\* NOTE: Direct cursor positioning is accomplished by the following four-character escape sequence:

ESC,=,r,c, where "ESC" is the ESCape key, "=" is the = key, "r" is the hexadecimal value (1-24) for the row + 20H, and "c" is the hexadecimal value (1-80) for the column + 20H.

Appendix C - TVI-920 Keyboard Code List  
(Unsupported features)

Function	Escape/Control Sequence	Decimal Code	Hex Code
New Line	CTRL _	31	1F
Set Block Mode	ESC B	27,66	1B,42
Set Conversation Mode	ESC C	27,67	1B,43
Protect Mode On	ESC &	27,38	1B,26
Protect Mode Off	ESC '	27,39	1B,27
Set Column Tab	ESC 1	27,49	1B,31
Clear Tab	ESC 2	27,50	1B,32
Clear All Tabs	ESC 3	27,51	1B,33
Send Line Unprotect	ESC 4	27,52	1B,34
Send Page Unprotect	ESC 5	27,53	1B,35
Send Whole Page Unprot.	ESC S	27,83	1B,53
Send Line All	ESC 6	27,54	1B,36
Send Page All	ESC 7	27,55	1B,37
Send Whole Page	ESC s	27,115	1B,73
Clear Unprot. to Null	ESC :	27,58	1B,3A
Clear Unprot. to Space	ESC ;	27,59	1B,3B
Toggle Page	ESC K	27,75	1B,4B
Start Underline	ESC 1	27,108	1B,6C
End Underline	ESC m	27,109	1B,6D
Load Cursor (page,row,col)	ESC -	27,45	1B,2D
Read Cursor (row,col)	ESC ?	27,63	1B,3F
Read Cursor (page,row,col)	ESC /	27,47	1B,2F
Auto Flip On	ESC v	27,118	1B,76
Auto Flip Off	ESC w	27,119	1B,77
Extension Port On	ESC @	27,64	1B,40
Extension Port Off	ESC A	27,65	1B,41
Print Page	ESC P	27,76	1B,50

## Appendix D

### STANDARD Hexadecimal Keyboard Mapping

LEGEND	UNSHIFT	SHIFT	CAPS LOCK	CONTROL	CONTROL SHIFT
F1	SOH,40,CR,0	SOH,60,CR,0	SOH,40,CR,0	00	00
F2	SOH,41,CR,0	SOH,61,CR,0	SOH,41,CR,0	00	00
F3	SOH,42,CR,0	SOH,62,CR,0	SOH,42,CR,0	00	00
F4	SOH,43,CR,0	SOH,63,CR,0	SOH,43,CR,0	00	00
F5	SOH,44,CR,0	SOH,64,CR,0	SOH,44,CR,0	00	00
F6	SOH,45,CR,0	SOH,65,CR,0	SOH,45,CR,0	00	00
F7	SOH,46,CR,0	SOH,66,CR,0	SOH,46,CR,0	00	00
F8	SOH,47,CR,0	SOH,67,CR,0	SOH,47,CR,0	00	00
F9	SOH,48,CR,0	SOH,68,CR,0	SOH,48,CR,0	00	00
F10	SOH,49,CR,0	SOH,69,CR,0	SOH,49,CR,0	00	00
BREAK	00	00	00	00	00
PAUSE	00	00	00	00	00
HELP	00	00	00	00	00
SCRN DUMP	00	00	00	00	00
SF1	00	00	00	00	00
SF2	00	00	00	00	00
SF3	00	00	00	00	00
SF4	00	00	00	00	00
ESC	1B	1B	1B	00	00
! 1	31	21	31	00	00
" 2	32	22	32	00	00
# 3	33	23	33	00	00
\$ 4	34	24	34	00	00
% 5	35	25	35	00	00
& 6	36	26	36	00	00
' 7	37	27	37	00	00
( 8	38	28	38	00	00
) 9	39	29	39	00	00
_ 0	30	5F	30	00	00
= -	2D	3D	2D	00	00
~ ^	5E	7E	5E	1E	1E
\	5C	7C	7C	1F	1F
BS	08	08	08	7F	7F
TAB	09	09	09	00	00
Q q	71	51	51	11	11
W w	77	57	57	17	17
E e	65	45	45	05	05
R r	72	52	52	12	12
T t	74	54	54	14	14
Y y	79	59	59	19	19
U u	75	55	55	15	15
I i	69	49	49	09	09
O o	6F	4F	4F	0F	0F
P p	70	50	50	10	10
\ @	40	60	40	00	00
{ [	5B	7B	5B	1C	1C
} ]	5D	7D	5D	1D	1D

Appendix D (cont.)

STANDARD Keyboard Mapping

LEGEND	UNSHIFT	SHIFT	CAPS LOCK	CONTROL	CONTROL SHIFT
LF	0A	0A	0A	0A	0A
CTRL					
A a	61	41	41	01	01
S s	73	53	53	13	13
D d	64	44	44	04	04
F f	66	46	46	06	06
G g	67	47	47	07	07
H h	68	48	48	08	08
J j	6A	4A	4A	0A	0A
K k	6B	4B	4B	0B	0B
L l	6C	4C	4C	0C	0C
+ ;	3B	2B	3B	00	00
* : ↵	3A	2A	3A	00	00
↵	0D	0D	0D	00	00
SHIFT					
Z z	7A	5A	5A	1A	1A
X x	78	58	58	18	18
C c	63	43	43	03	03
V v	76	56	56	16	16
B b	62	42	42	02	02
N n	6E	4E	4E	0E	0E
M m	6D	4D	4D	0D	0D
< ,	2C	3C	2C	00	00
> .	2E	3E	2E	00	00
? /	2F	3F	2F	00	00
SHIFT					
CAPS LOCK	00	00	00	00	00
SPACE BAR	20	20	20	20	20
GRPH SHIFT					
HOME	1E	1E	1E	00	00
CLS	1A	1A	1A	00	00
INS	00	00	00	00	00
DEL	7F	7F	7F	00	00
↕	0B	0B	0B	00	00
↵	08	08	08	00	00
↶	0C	0C	0C	00	00
↷	0A	0A	0A	00	00

Appendix D (cont.)

STANDARD Keyboard Mapping

LEGEND	UNSHIFT	SHIFT	CAPS LOCK	CONTROL	CONTROL SHIFT
*	2A	2A	2A	2A	2A
/	2F	2F	2F	2F	2F
+	2B	2B	2B	2B	2B
-	2D	2D	2D	2D	2D
7	37	37	37	37	37
8	38	38	38	38	38
9	39	39	39	39	39
=	3D	3D	3D	3D	3D
4	34	34	34	34	34
5	35	35	35	35	35
6	36	36	36	36	36
,	2C	2C	2C	2C	2C
1	31	31	31	31	31
2	32	32	32	32	32
3	33	33	33	33	33
↵	0D	0D	0D	0D	0D
0	30	30	30	30	30
000	30,30,30,0	(This code is issued in ALL cases)			
.	2E	2E	2E	2E	2E






## Appendix E

### HASCII Hexadecimal Keyboard Mapping

LEGEND	UNSHIFT	SHIFT	CAPS LOCK	CONTROL	CONTROL SHIFT
STOP	SOH,40,CR,0	SOH,60,CR,0	SOH,40,CR,0	00	00
HELP	SOH,41,CR,0	SOH,61,CR,0	SOH,41,CR,0	00	00
COPYDISK	SOH,42,CR,0	SOH,62,CR,0	SOH,42,CR,0	00	00
UNDO	SOH,43,CR,0	SOH,63,CR,0	SOH,43,CR,0	00	00
STORE	SOH,44,CR,0	SOH,64,CR,0	SOH,44,CR,0	00	00
RETRIEVE	SOH,45,CR,0	SOH,65,CR,0	SOH,45,CR,0	00	00
PRINT	SOH,46,CR,0	SOH,66,CR,0	SOH,46,CR,0	00	00
INDEX	SOH,47,CR,0	SOH,67,CR,0	SOH,47,CR,0	00	00
MAIL	SOH,48,CR,0	SOH,68,CR,0	SOH,48,CR,0	00	00
MENU	SOH,49,CR,0	SOH,69,CR,0	SOH,49,CR,0	00	00
CALC	00	00	00	00	00
SCHED	00	00	00	00	00
DRAW	00	00	00	00	00
BOLD	00	00	00	00	00
ITALIC	00	00	00	00	00
SIZE	00	00	00	00	00
STYLE	00	00	00	00	00
MAR REL	1B	1B	1B	00	00
^	7E	5E	7E	00	00
! 1	31	21	31	00	00
@ 2	32	40	32	00	00
# 3	33	23	33	00	00
\$ 4	34	24	34	00	00
% 5	35	25	35	00	00
6	36	60	36	00	00
& 7	37	26	37	00	00
* 8	38	2A	38	00	00
( 9	39	28	39	00	00
) 0	30	29	30	00	00
-	2D	5F	2D	00	00
+ =	3D	2B	3D	1E	1E
⌘	5C	7C	7C	1F	1F
⌘	08	08	08	7F	7F
TAB	09	09	09	00	00
Q q	71	51	51	11	11
W w	77	57	57	17	17
E e	65	45	45	05	05
R r	72	52	52	12	12
T t	74	54	54	14	14
Y y	79	59	59	19	19
U u	75	55	55	15	15
I i	69	49	49	09	09
O o	6F	4F	4F	0F	0F
P p	70	50	50	10	10
¼ ½	7B	7D	7B	00	00
[ <	3C	5B	3C	1C	1C
] >	3E	5D	3E	1D	1D
Aa	41	41	41	01	01

Appendix E (cont.)

HASCI Keyboard Mapping

LEGEND	UNSHIFT	SHIFT	CAPS LOCK	CONTROL	CONTROL SHIFT
Ss	73	53	53	13	13
Dd	64	64	44	04	04
Ff	66	46	46	06	06
Gg	67	47	47	07	07
Hh	48	48	48	08	08
Jj	6A	4A	4A	0A	0A
Kk	4B	4B	4B	0B	0B
Ll	6C	4C	4C	0C	0C
;:	3B	3A	3B	00	00
"'	27	22	27	00	00
RETURN	0D	0D	0D	00	00
Z z	7A	5A	5A	1A	1A
X x	58	58	58	18	18
C c	63	63	43	03	03
V v	76	56	56	16	16
B b	62	42	42	02	02
N n	6E	4E	4E	0E	0E
M m	6D	4D	4D	0D	0D
,,	2C	2C	2C	00	00
..	2E	2E	2E	00	00
?/	2F	3F	2F	00	00
CTRL	00	00	00	00	00
SPACE BAR	20	20	20	20	20
GRPH SHIFT	00	00	00	00	00
TAB REL	0	93	00	00	00
TAB SET	00	00	00	00	00
	1E	1E	1E	00	00
LINE	1A	1A	1A	00	00
INSERT	00	00	00	00	00
WORD	7F	7F	7F	00	00
	0B	0B	0B	00	00
	08	08	08	00	00
	0C	0C	0C	00	00
	0A	0A	0A	00	00
DEC.TAB	00	00	00	00	00
÷	2F	2F	2F	2F	2F
X	2A	2A	2A	2A	2A
-	2D	2D	2D	3D	2D
7	37	37	37	37	37
8	38	38	38	38	38
9	39	39	39	39	39
+	2B	2B	2B	2B	2B
4	34	34	34	34	34
5	35	35	35	35	35

Appendix E (cont.)

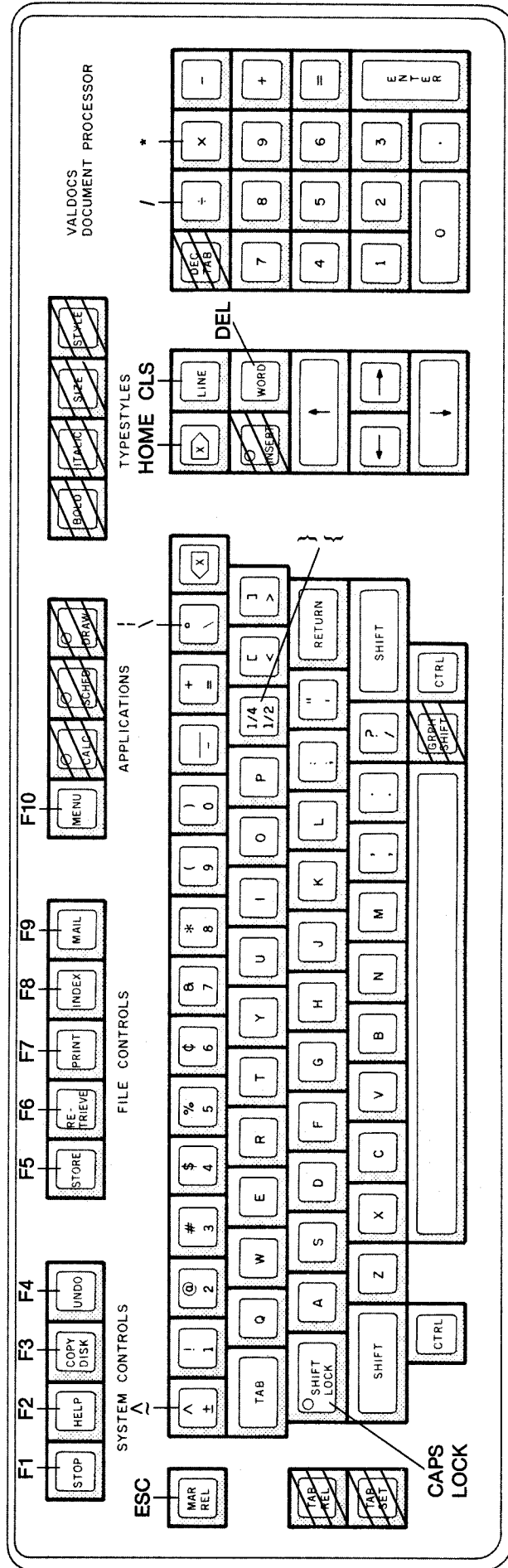
HASCI Keyboard Mapping

LEGEND	UNSHIFT	SHIFT	CAPS LOCK	CONTROL	CONTROL SHIFT
6	36	36	36	36	36
=	3D	3D	3D	3D	3D
1	31	31	31	31	31
2	32	32	32	32	32
3	33	33	33	33	33
ENTER	0D	0D	0D	0D	0D
0	30	30	30	30	30
.	2E	2E	2E	2E	2E



# APPENDIX G — HASCI KEYBOARD DIAGRAM

(as standard, used with CP/M-80)



This key doesn't do anything.