

Program Control of the ADDS Consul 880

Technical Note #1

Stuart C. Shapiro

Feb, 1973

In order to make full use of the ADDS Consul 880, it is necessary for an interactive program to be able to exercise all the control functions (see the manual, HOW TO USE THE CONSUL). This may be done by sending 8 bit ASCII characters to a connected file, using two display characters for each ASCII character, as described in the RCC System Bulletin #27(87;08/71). Basically, one sends an output line whose first character is '#', whose second character is a blank and whose remaining characters, taken two at a time, form the codes for the desired ASCII characters.

On page 3 of this paper the possible ADDS Consul 880 functions are listed with their ASCII codes and their Display Codes.

On page 4 the codes are given for making use of the limited graphics option. The lines are numbered so that the line number is the decimal equivalent of the binary number whose 1 bits indicate which positions are to be darkened. For example, the code to darken positions 1, 4 and 6 is on line $101001_2 = 41_{10}$. This table may also be used to find the codes for all the characters displayable on the terminal screen.

Example 1 — to place three 'X's in positions 39, 40 and 41 of line 24, with the middle 'X' blinking, output the line:

```
'#bQWZ4SVPZVWQOQQ2OQQ3OQ'
```

Example 2 — to darken positions 3 and 4 of the first three character positions of line 5, output the line:

```
'#bQWXXSSQ2YYYYYYQ3'
```

Example 3 — on page 5 is a listing of the permanent file SNOADDS, ID = SCS which may be used as the beginning of a SNOBOLC program that needs to control the ADDS terminal. Coded ASCII characters are output on the file KEYBRD, which must be connected, by assigning a string whose first character is a blank to the variable ADDS. The code for each displayable character is the value of the variable whose name is that character followed by ".". The value of the variable LINE n is the code to position the cursor on the n th line. Several other control codes are values of mnemonically meaningful variables. The function ASCII takes a string and returns as its value a string consisting of the two character codes for each character in the original string. If SNOADDS is used, the examples above may be done as follows:

- 1) ADDS = ' ' LINE24 TAB ASCII('38X') TAGON X. TAGOFF X.
- 2) ADDS = ' ' LINE5 'SS' TAGON ASCII('LLL') TAGOFF

Special Warnings and Notes

1) Whenever CR is sent to the Consul 880, it is handled as CR,LF.

2) When CR is sent, the line where the cursor was is blanked out starting in the position where the cursor was. This is the fastest way to erase a portion of the screen.

CODES FOR PROGRAM CONTROL OF ADDS CONSUL 880

<u>FUNCTION</u>	<u>ASCII</u>	<u>CODE</u>
Carriage Return	CR	QO
Line Feed	LF	QT
Delay	DEL	44
Transmit	DC1	RR
Screen Erase	FF	QX
Start Tag	SO	Q2
Stop Tag	SI	Q3
Format On	RS	S1
Format Off	US	S4
Graphics Mode On	EM	SS
Horizontal Tab	HT	QR
*Vertical Tab	VT	QW
**Within Line Cursor Addressing	ESC,ENQ	SVPZ

* This must be followed by one of the following codes, depending on which line is wanted.

<u>LINE</u>	<u>ASCII</u>	<u>CODE</u>	<u>LINE</u>	<u>ASCII</u>	<u>CODE</u>	<u>LINE</u>	<u>ASCII</u>	<u>CODE</u>
1	@	XQ	9	H	YP	17	P	ZP
2	A	XR	10	I	YS	18	Q	ZS
3	B	XT	11	J	YU	19	R	ZU
4	C	XW	12	K	YV	20	S	ZV
5	D	XX	13	L	YY	21	T	ZY
6	E	XO	14	M	YZ	22	U	ZZ
7	F	X2	15	N	Y1	23	V	Z1
8	G	X3	16	O	Y4	24	W	Z4

** This must be followed by two of the following codes, the first giving the ten's digit and the second the one's digit of the number of spaces the cursor is to be moved.

<u>DIGIT</u>	<u>ASCII</u>	<u>CODE</u>	<u>DIGIT</u>	<u>ASCII</u>	<u>CODE</u>
0	0	VP	5	5	VZ
1	1	VS	6	6	V1
2	2	VU	7	7	V4
3	3	VV	8	8	WQ
4	4	VY	9	9	WR

CODES FOR LIMITED GRAPHICS

FORMAT OF THE POSITION:

1	2
3	4
5	6

#	SQUARES TO BE DARKENED	ASCII	CODE	#	SQUARES TO BE DARKENED	ASCII	CODE
0	none	@	XQ	32	6	space	TQ
1	1	A	XR	33	1,6	!	TR
2	2	B	XT	34	2,6	"	TT
3	1,2	C	XW	35	1,2,6	#	TW
4	3	D	XX	36	3,6	\$	TX
5	1,3	E	X0	37	1,3,6	%	T0
6	2,3	F	X2	38	2,3,6	&	T2
7	1,2,3	G	X3	39	1,2,3,6	'	T3
8	4	H	YP	40	4,6	(	UP
9	1,4	I	YS	41	1,4,6	)	US
10	2,4	J	YU	42	2,4,6	*	UU
11	1,2,4	K	YV	43	1,2,4,6	+	UV
12	3,4	L	YY	44	3,4,6	,	UY
13	1,3,4	M	YZ	45	1,3,4,6	-	UZ
14	2,3,4	N	Y1	46	2,3,4,6	.	U1
15	1,2,3,4	O	Y4	47	1,2,3,4,6	/	U4
16	5	P	ZP	48	5,6	0	VP
17	1,5	Q	ZS	49	1,5,6	1	VS
18	2,5	R	ZU	50	2,5,6	2	VU
19	1,2,5	S	ZV	51	1,2,5,6	3	VV
20	3,5	T	ZY	52	3,5,6	4	VY
21	1,3,5	U	ZZ	53	1,3,5,6	5	VZ
22	2,3,5	V	Z1	54	2,3,5,6	6	V1
23	1,2,3,5	W	Z4	55	1,2,3,5,6	7	V4
24	4,5	X	OQ	56	4,5,6	8	WQ
25	1,4,5	Y	OR	57	1,4,5,6	9	WR
26	2,4,5	Z	OT	58	2,4,5,6	:	WT
27	1,2,4,5	[	OW	59	1,2,4,5,6	;	WW
28	3,4,5	/	OX	60	3,4,5,6	<	WX
29	1,3,4,5	]	00	61	1,3,4,5,6	=	W0
30	2,3,4,5	↑	02	62	2,3,4,5,6	>	W2
31	1,2,3,4,5	+	03	63	1,2,3,4,5,6	?	W3

SNOADDS, ID=SCS

```

10= DETACH('INPUT')
20= INPUT('INPUT','KEYBRD',80)
30= OUTPUT('ADDS','KEYBRD','#')
40= ASCIIPAT = LEN(1) . CHR
50= DEFINE('ASCII(STR)CHR') : (DEF)
60=ASCII STR ASCIIPAT = :F(RETURN)
70= ASCII = SCII $(CHR '.'): (ASCII)
80=DEF $'0.' = 'VP' ; $'1.' = 'VS' ; $'2.' = 'VU' ; $'3.' = 'VV'
90= $'4.' = 'VY' ; $'5.' = 'VZ' ; $'6.' = 'V1' ; $'7.' = 'V4'
100= $'8.' = 'WQ' ; $'9.' = 'WR' ; $'0.' = 'XQ' ; A. = 'XR' ; B. =
'XT'
110= C. = 'XW' ; D. = 'XX' ; E. = 'X0' ; F. = 'X2' ; G = 'X3' ; H.
= 'YP'
120= I. = 'YS' ; J. = 'YU' ; K. = 'YV' ; L. = 'YY' ; M. = 'YZ' ; N. =
'Y1'
130= O. = 'Y4' ; P. = 'ZP' ; Q. = 'ZS' ; R. = 'ZU' ; S. = 'ZV' ; T. =
'ZY'
140= U. = 'ZZ' ; V. = 'Z1' ; W. = 'Z4' ; X. = 'OQ' ; Y. = 'OR' ; Z. =
'OT'
150= VT = 'QW' ; ERASE = 'QX' ; TAGON = 'Q2' ; TAGOFF = 'Q3'
160= FORMON = 'S1' ; FORMOFF = 'S4' ; TAB = 'SVPZ' ; $' .' = 'TQ'
170= SP = 'TQ' ; CR = 'Q0' ; $('[. ') = 'OW' ; $('\. ') = 'OX' ;
180= $(']. ') = 'OO' ; $('! ') = 'O2' ; $('! ') = 'TR'
190= $('" ') = 'TT' ; $('# ') = 'TW' ; $('$ ') = 'TX' ; $('% ') = 'TO'
200= $('& ') = 'T2' ; $('' ') = 'T3' ; $('(' ') = 'UP' ; $(') ') = 'US'
210= $('* ') = 'UU' ; $('+ ') = 'UV' ; $(',' ') = 'UY' ; $('- ') = 'UZ'
220= $('.. ') = 'U1' ; $('/. ') = 'U4' ; $(': ') = 'WT' ; $('; ') = 'WW'
230= $('< ') = 'WX' ; $('= ') = 'GO' ; $('> ') = 'W2' ; $('? ') = 'W3'
240= LINE1 = VT $'0.' ; LINE2 = VT A. ; LINE3 = VT B. ; LINE4 = VT C.
250= LINE5 = VT D. ; LINE6 = VT E. ; LINE7 = VT F. ; LINE8 = VT G.
260= LINE9 = VT H. ; LINE10 = VT I. ; LINE11 = VT J. ; LINE12 = VT K.
270= LINE13 = VT L. ; LINE14 = VT M. ; LINE15 = VT N. ; LINE16 = VT O
280= LINE17 = VT P. ; LINE18 = VT Q. ; LINE19 = VT R. ; LINE20 = VT S
290= LINE21 = VT T. ; LINE22 = VT U. ; LINE23 = VT V. ; LINE24 = VT W
300=**
310=***** END OF ASCII DEFINITIONS

```