

UNIVERSITY OF ILLINOIS
DIGITAL COMPUTER

LIBRARY ROUTINE 05 - 162

TITLE: Fast Character Display 4 x 6 Raster (SADOI Only)
NUMBER OF WORDS: 50 words for 0 ... 9, +, -
58 words for hexadecimal
DURATION: Average 11 milliseconds per character.
PURPOSE: To display one character from among the following:
0 ... 9, +, -, N, J, F, L. A 4 x 6 format with the
closest spacing is used, enabling 1600 characters to
be displayed in one frame.
TEMPORARY STORAGE: 0, 1, 2, 3
METHOD OF USE: Normal closed subroutine. Upon entry, N(A) must be
as follows:
 $a_0 \dots a_{15}$ define position of character on scope.
They must be such that an 82 16F order would display
a spot at the lower left-hand corner of the character.
 $a_{28} \dots a_{29}$ (right-hand address) = n, the character to
be displayed. $0 \leq n \leq 15$.
PRESET PARAMETER: None
NOTE: The subroutine consists of 58 words. The last 8 of
these may be overwritten if the characters N, J, F, L
are not required.

DATE	<u>11/29/54</u>	RT:	<u>3/4/60</u>
PROGRAMMED BY	<u>S. Gill</u>		
APPROVED BY	<u>J. P. Nash</u>		

LOCATION	ORDER	NOTES	PAGE 1	0 5
	00K(05)			
	26 1000N			
0	L4 20L		double n and add constant	
	40 F			
1	L4 F		may become F4 F during interlude	
	42 8L			
2	F4 25L		set to extract pattern from table	
	42 7L			
3	K5 F		set link	
	42 18L			
4	50 F			
	J0 25L		base co-ordinates to 0	
5	K5 F			
	40 F			
6	J0 22L			
	S5 F		base y co-ordinates to 0	
7	40 1F			
	L5 F	by 2'	2nd word of pattern to 2	
8	40 2F			
	50 F	by 1'		
9	S5 F		1st word to Q and 3	
	40 3F	from 19'		
10	10 3F			
	J0 23L		appropriate digits to A	
11	S5 F			
	50 2F			
12	J0 24L		appropriate digits to Q	
	26 15L		enter display cycle	
13	F0 21L	from 15, 16'		
	32 17L		test for last co-ordinate	
14	L4 F		add base	
	82 16F		display new x,y	
15	36 13L	from 12'	test for end of column	display cycle
	L4 1F	from 17	add base y	
16	82 8F		display new y, old x	
	36 13L		test for end of column	

LOCATION	ORDER		NOTES	PAGE 2
17	22 15L F1 3F	from 13'		
18	50 2F 32 (F)			
19	40 2F 22 9L	by 3'		interchange words of pattern, complement N(3) and test its sign
20	7L F 00 (26L)			
21	80 F 00 F			address becomes (26 L)/2
22	50 21L L5 20L			clear Q (except q ₀)
23	10 1F 42 20L			halve address in 20'
24	S5 F 00 1F			form -2 ⁻³ if address was odd
25	10 3F L4 1L			modify 1 if necessary
26	40 1L L5 27L			return to D.O.I.
27	22 1014F 26 22L 26 1N			
22	LL F 00 F			
23	87 2168F 78 1927F			= 1000011111000011111....
24	43 3132F 3N 963F			= 01000011111000011111....
25	LL 4080F 00 F			
26	12 89F J6 2027F			0
27	08 2383F 31 24F			

LOCATION	ORDER	NOTES	PAGE 3
28	4S 3325F		
	7J 4067F	1	
29	42 3120F		
	00 F		
30	4K 90F		
	94 3019F	2	
31	49 1393F		
	N3 8F		
32	52 3171F		
	20 2251F	3	
33	4K 1394F		
	42 3120F		
34	19 13F		
	SN 4067F	4	
35	09 2517F		
	69 3104F		
36	52 98F		
	4F 4083F	5	
37	08 2382F		
	67 784F		
38	12 1149F		
	LF 2027F	6	
39	4S 330F		
	OJ 536F		
40	73 3135F		
	3N 3019F	7	
41	29 1495F		
	1N 579F		
42	52 97F		
	J6 3019F	8	
43	08 3430F		
	73 16F		
44	21 1150F		
	SJ 3019F	9	

LOCATION	ORDER	NOTES	PAGE 4
45	4S 473F		
	55 3872F		
46	5S 3133F		
	3N 4059F	+	
47	42 24F		
	10 F		
48	5S 3133F		
	SN 3055F		
49	01 24F		
	18 F		
50	OK 2145F		
	59 3360F	N	
51	52 3441F		
	K8 2266F		
52	10 3132F		
	SN 3019F	J	
53	11 449F		
	N2 1064F		
54	08 3149F		
	65 4067F	F	
55	62 3315F		
	02 16F		
56	4S 3197F		
	7J 4067F	L	
57	4K 3376F		
	89 2176F		