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PROGRAM LIBRARY

DECUS NO.	8-540A
TITLE	BRaille - 8
AUTHOR	Richard Rubinstein
COMPANY	University of California Irvine, California
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SOURCE LANGUAGE	PAL-8

DECUS

PROGRAM LISTING



BRAILLE - 8

DECUS Program Library Write-up

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BRAILLE - 8 enables a blind time-sharing user to use a remote computer interactively with output in Braille. Connection to the remote machine is via an EIA-compatible line which may be hard-wired or used with an acoustic coupler. BRAILLE - 8 translates characters and buffers output to the (easily modified) console teletype.

A complete one-cell Braille representation of the standard teletype character set is used, and Braille output codes may be modified easily by the table changes if the user so desires. Available switch options: Full/half duplex; Hold output; Flush buffer. [REDACTED]

/BRAILLE TRANSLATION PROGRAM PAL8=V8

/BRAILLE TRANSLATION PROGRAM
/RICHARD RUBINSTEIN
/UNIVERSITY OF CALIFORNIA, IRVINE
/NOVEMBER, 1971

/ THIS ROUTINE PROVIDES A BRAILLE TIME-SHARING INTERACTION VIA
/ THE (MODIFIED) CONSOLE TELETYPE AND THE EIA INTERFACE (PRESUMABLY
/ CONNECTED TO AN ACOUSTIC COUPLER OR REMOTE COMPUTER)

/ SENSE SWITCH OPTIONS: SWITCH DOWN UP
/ 9 FULL DUPLEX HALF DUPLEX
/ 10 CLEAR/RESTART OPERATE
/ 11 HOLD OUTPUT BRAILLE

/ START/RESTART ADDRESSES: 0000 OR 0200

6311 TSFR= 6311; TFSR= 6316

6306 KRBR= 6306; KSFR= 6301

6007 CAF= 6007 KCCR= 6320; TFL= 6040

6320 TFLR= 6310; KCCR= 6320; TFL= 6040

/*0
/ JMP I .+1 /RESTART
START

0000 IPTR= 2
0001 OPTR= 3
0002 DDT= 4
0003 NCHAR= 5
0004 TEMP= 6
0005 SAVE= 7

0010 AXR= 10 /AUTO INDEX REG
0011 *11
0400 BST, FCGOR+5
0015 NCR, 15
0177 N177, 177
0212 NLF, 212
7740 M40, -40

00011
00012
00013
00014
00015

```

000016 7664 MD76, -114 /RESET VAL FOR NCHAR =-76(10)
000017 0077 N77, 77
000020 7641 M137, -137
000021 0240 NSP, 240 /ASCII SPACE
000022 0022 NBELL= !
000022 0007 N7, 7
000023 0261 AXLATE, XLATE
000024 0027 ATTAB, TTAB
000025 0067 ACTAB, CTAB
000026 0573 OBUF= FCOR
000026 0372 AOBFI, OBUF-1 /A(OBUF)-1

/TRANSLATION TABLE
/AS READ, VALUE BRAILLE "BITS," FROM TOP, 4 2 1 (FOR CODING PURPOSES)
TTAB, 0075 /" ,#
000027 0217 4335 / (DOLLAR) ,%
000030 4335 4710 /& , '
000031 4335 7337 / ( , )
000032 4710 0415 /* , +
000033 7337 0111 / (COMMA) , -
000034 0415 0514 / , , /
000035 0111 1320 / 0 , 1
000036 0514 3022 / 2 , 3
000037 1320 2321 / 4 , 5
000040 3022 3233 / 6 , 7
000041 2321 3112 / 8 , 9
000042 3233 0603 / : , ;
000043 3112 6163 / < , =
000044 0603 4516 / > , ?
000045 6163 6540 / @ , A
000046 4516 6044 / B , C
000047 6540 4642 / D , E
000050 6044 6466 / F , G
000051 4642 6224 / H , I
000052 6466 2650 / J , K
000053 6224 7054 / L , M
000054 2650 5652 / N , O
000055 7054 7476 / P , Q
000056 5652 7234 / R , S
000057 7476 3651 / T , U
000060 7234 7127 / V , W
000061 3651 5557 / X , Y
000062 7127 5325 / Z , [
000063 5557 4167 / \ , ]
000064 5325 0777 / , , ,
000065 4167
000066 0777

```

```

/ BRAILLE EQUIVALENT CHARACTERS
CTAB, 240
00067 0240
00070 0305
00071 0316
00072 0301
00073 0314
00074 0303
00075 0307
00076 0310

/GET NEXT "EXPANDED CHAR"
/AC MUST BE 0 ON ENTRY
OPT, 0
TAD I AXR
SZA
JMP I OPT

/TERM INATOR?
/NO--RETURN
/YES--GET NEXT EXPANSION
/BUF EMPTY?

00103 1002 TAD IPTR
00104 7041 CIA
00105 1003 TAD OPTR
00106 7650 SNA CLA
00107 5117 JMP IPT2

/YES--NO OUTPUT
/INCREMENT OPTR & WRAP AROUND IF NECESSARY
ISE
JMP IPT1
TAD BST
DCA OPTR

/EXPAND THE CHAR
IPT1, TAD I OPTR
JMS I AXLATE
JMP OPT+1

/GET CHAR
/EXPAND IT
/GET NXT OUTPUT CHAR

00114 1403 /EXPAND THE CHAR
00115 4423 IPT1, TAD I OPTR
00116 5100 JMS I AXLATE
JMP OPT+1

/PUT AXR BACK, NULL RETURN
IPT2, CLA CMA
TAD AXR
DCA AXR
JMP I OPT

00117 7240
00120 1010
00121 3010
00122 5477

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00123 00000 /ADD CHAR TO BUFFER
00124 30007 ATB, 0
00125 10002 /HAS BUFFER OVERFLOWED?
00126 70400 DCA DCA SAVE
00127 10003 TAD TAD OPTR
00130 76500 SNA SNA OPTR
00131 51520 JMP CLA OPTR
00132 10111 /OVERFLOW
00133 70401 TAD BST
00134 10003 CTA OPTR
00135 76400 SZA CLA
00136 51403 JMP ATB2
00137 10002 TAD IPTR
00140 70001 IAC
00141 76500 SNA CLA
00142 51520 JMP OPTR
00143 20002 /INCR IPTR & WRAP AROUND IF NECESSARY
00144 51407 ATB2, ISZ IPTR
00145 10111 JMP ATB1
00146 30002 TAD BST
00147 10007 DCA IPTR
00150 34002 /DEPOSIT CHAR
00151 55203 ATB1, TAD SAVE
00152 60401 DCA I IPTR
00153 51520 JMP I ATB
00154 10222 /OVERFLOW--IGNORE CHAR & RING BELL
00155 60406 TAD *-1
00156 55203 TLS NBELL
                    JMP I ATB
                    /XMIT BELL
                    /RETURN
                    /WAIT FOR TTY PTR
                    /RETURN

```



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00250 5215 JMP T1 /NO
00251 4077 JMS OPT /GET NXT OPT CHAR
00252 7450 SNA /NULL CHAR?
00253 5215 JMP T1 /YES--IGNORE
00254 6046 TLS /XMIT
00255 2005 ISZ NCHAR /72ND CHAR ON THIS LINE?
00256 5215 JMP T1 /NO
00257 7200 CLA /YES--SIMULATE (CR) INPUT
00260 5213 JMP Lrst /PARTIAL CHAR, IF ANY, DISCARDED)

/TRANSLATE ASCII TO BRAILLE EQUIVALENT
/OUTPUT IN OBUF, 1 CHAR PER WORD
/RETURN WITH AC=0
XLATE, 0
00261 0000 AND N177 /ELIMINATE PARITY
00262 0013 DCA SAVE /SAVE CH, AC=0
00263 3007 TAD AOBFI /RESET AXR (PNTR TO OBUF)
00264 1026 DCA AXR
00265 3010 DCA OBUF /POSSIBLE NULL OUTPUT
00266 3373 DCA OBUF /POSSIBLE 2ND CHAR
00267 1014 TAD NLF /PROBABLE 3RD CHAR
00270 3374 DCA OBUF+1
00271 1021 TAD NSP /ZERO TERMINATOR
00272 3375 DCA OBUF+2 /GET CHAR
00273 3376 TAD OBUF+3
00274 1007 DCA TAD /IS IT (CR)?
00275 7041 CIA NCR
00276 1012 TAD SZA CLA /NO
00277 7640 JMP X1 /GET CHAR
00300 5312 TAD SAVE /YES--OBUF+(CR)
00301 1007 DCA OBUF
00302 3373 WAS PRESET TO (LF)
/OBUF+1
00303 1014 TAD NLF /OBUF+2+(LF)
00304 3375 DCA OBUF+2
00305 1014 TAD NLF /OBUF+3+(LF)
00306 3376 DCA OBUF+3 /RESET LINE CHAR COUNT
00307 1016 TAD MD76
00310 3005 DCA NCHAR
00311 5661 JMP I /RETURN

```


00362	1406	TAD I	TEMP	
00363	3373	DCA	OBUF	
00364	1007	TAD	SAVE	
00365	0022	AND	N7	/2ND CHAR
00366	1025	TAD	ACTAB	
00367	3006	DCA	TEMP	
00370	1406	TAD I	TEMP	
00371	3374	DCA	OBUF+1	
00372	5661	/OBUF+2,5 ALREADY CONTAIN BLANK, ZERO, RESPECTIVELY		
		JMP I	XLATE	/RETURN
		/		
	0373	FCOR=		
	0377	*OBUF+4;		
00377	0000	\$	0	/MAX 5 OUTPUT CHARACTERS

ACTAB	0025
A0BF1	0026
ATB	0123
ATB1	0147
ATB2	0143
ATTAB	0024
AXLATE	0023
AXR	0010
BST	0011
CAF	6007
CTAB	0067
DDT	0004
FCOR	0373
IPTR	0002
IPT1	0114
IPT2	0117
KCCR	6320
KRBR	6306
KSFR	6301
LRST	0213
MD76	0016
M137	0020
M40	0015
NBELL	0022
NCHAR	0005
NCR	0012
NLF	0014
NSP	0021
N177	0013
N7	0022
N77	0017
OBUF	0373
OPT	0077
OPTR	0003
OVFL	0152
SAVE	0007
START	0200
TEMP	0006
TFL	6040
TFLR	6310
TLSR	6316
TSFR	6311
TTAB	0027
T1	0215
T2	0237
T3	0243
XLATE	0261
X1	0312
X2	0326
X3	0352