

SUPER HI-RES GRAPHICS CONVERTER

Convert your
standard Hi-Res
pictures to the IIGS
Super Hi-Res format
with this new
graphics utility.

Load your old Apple II pictures into one of the new IIGS paint programs and add the color those pictures have been missing for years. Super Converter is a program that allows you to convert standard Hi-Res pictures into a form that the new IIGS paint programs, such as Paintworks Plus, can load and print using the fabulous colors of the IIGS.

USING THE PROGRAM

Super Converter is menu-driven and reads the picture files off the disk for you, so you don't have to remember the names of your files. You can do almost everything from the main menu: catalog a disk, change the prefix, load a standard Hi-Res picture, convert to Super Hi-Res, view the Hi-Res or Super Hi-Res screen, and save the Super Hi-Res screen on disk. The main menu options are discussed below.

Run the program by typing

RUN SUPER.CONVERTER

It will first check the current drive to get the name of the disk. If there is no disk in the drive, the program will prompt you and ask you to indicate the correct drive.

Changing the Prefix

If you are running this program off of one disk and your pictures are in a subdirectory or on another disk, use the Change Prefix option to change the prefix to what you require. You need not remember the name of the disk or subdirectory you want to change to, because Super Converter will read the disk in the drive and list all the available subdirectories. If you don't set the prefix, the program won't know where to look to find your picture file.

Loading a Standard Hi-Res Picture

When you select the Load Standard Hi-Res Picture option, you will be presented with a list of valid Hi-Res pictures within the prefix you've selected. The program will tell you if it can't find any picture files. Remember that this program can load only full standard Hi-Res files, not packed pictures and Double Hi-Res graphics. Because the program lists the valid files on the disk, you can see which picture files it will accept.

Converting to Super Hi-Res

Converting your picture to Super Hi-Res is the heart of the program. When you choose the Convert Standard To Super option, Super Converter displays another menu containing the types of conversions available: full color, black and white, or green or amber monochrome. After you make your choice, the screen will clear and the conversion will begin.

Full color conversion will convert the Hi-Res pictures to Super Hi-Res exactly as they appear in standard Hi-Res. But some pictures, such as those taken with a camera, may look better on a monochrome screen. When one of these is viewed on a color screen, it just doesn't look quite as good. You can use one of the monochrome conversion options to change these pictures to the mode for which they were made.

You may notice that the converted pictures appear horizontally squashed. This is because the standard Hi-Res screen is made up of a map of pixels 280 wide by 192 high and the Super Hi-Res screen this program uses is 320 by 200 causing the converted picture to appear smaller than the original. The difference in resolution also causes the right side of the converted picture to be blank.

Saving the Super Hi-Res Screen

Once you have converted a picture to Super Hi-Res you can save the converted screen to disk with the Save Super Hi-Res Screen option. The resulting file can be loaded by most commercial paint programs for the IIGS.

Some paint programs may require the saved picture to be of a certain file type, namely SCI. This program saves pictures with a file type of BIN, but you can easily change it to any type you need. If you find that your paint program will not load a converted picture because of its file type, simply change line 520 and line 540 to read

```
520 PRINT D$"CREATE "AS",T$C1": FOR I = 1 TO 4
560 PRINT D$"BSAVE "AS",A$4000,L$2000,B"(1-1)
+8192",T$C1"
```

ENTERING THE PROGRAM

There are two program listings for Super Converter. One is the main BASIC program; the other is the machine language routine. Only Listing 1, the BASIC program, is required. It will POKE all the required machine language for you. Listing 2 shows the machine language source code for those of you who want to examine it but it does not need to be typed in.

Type in Listing 1 and save it with the command

SAVE SUPER.CONVERTER

For help with entering *Nibble* listings, see the Typing Tips section.

Monochrome conversion is very simple. Each pixel from the standard Hi-Res screen is transformed onto the Super Hi-Res screen. Color conversion is a little more difficult.

HOW THE PROGRAM WORKS

Monochrome conversion is very simple. Each pixel from the standard Hi-Res screen is transformed onto the Super Hi-Res screen. If the pixel in standard Hi-Res is on, the program turns on the corresponding Super Hi-Res pixel.

Color conversion is a little more difficult. In standard Hi-Res, a pixel's color is determined first by whether it is on or off. If it is off, its color is always black. If the pixel is on, then its color depends on several things. If an adjacent pixel is on, then the pixel will always be white. If an adjacent pixel is not on, the pixel's color will be selected from four possibilities based on whether the pixel is in an odd or even column and whether or not the byte in memory containing that pixel has its high bit set or cleared.

When converting pictures, Super Converter begins by clearing the Super Hi-Res screen and placing a palette of colors matching those of the standard Hi-Res screen into palette 0 of the Super Hi-Res screen. This is accomplished in lines 37-67 of Listing 2. Next it begins a top-to-bottom scan of the standard Hi-Res screen, plotting each pixel on the Super Hi-Res screen according to its color in standard Hi-Res. Super Converter determines pixel color in lines 73 and 74 by first checking whether the pixel is on or off. If the pixel is off, it puts a black pixel on the Super Hi-Res screen at that position. If the pixel is on, it first checks both left and right adjacent pixels to see whether they are on (lines 78-83). If either is on, the program plots a white. If neither is on, Super Converter determines the color from a look-up table and plots one pixel on the Super Hi-Res screen at that position.

If the pixel is to be in a color other than black or white, Super Converter checks to see whether the color appears as one or two pixels wide in standard Hi-Res by checking the pixel located two horizontal positions to the right of the original pixel. If this pixel

is on, the color should be two pixels wide to appear as a solid color. If the pixel is off, the color appears as only a single pixel and Super Converter treats it as such.

This program allows you to add a wider variety of text to your Super Hi-Res picture... and to use your video digitizer to create Super Hi-Res pictures.

CONCLUSION

This program has more uses than simply converting pictures. For one, it allows you to add a wider variety of text to your Super Hi-Res pictures. You can use your old text programs such as Fontrix or Print Shop to type your message, then convert the picture to Super Hi-Res and use it from Paintworks or 8/16 Paint. This program also allows you to use your video digitizer to create Super Hi-Res pictures. By adding the color yourself, you have a color digitized picture. With a little imagination you should be able to come up with many more uses for Super Converter.

LISTING 1: SUPER.CONVERTER

```
37 10 REM *****
20 REM + SUPER.CONVERTER +
B9 30 REM + BY TOM DORRIS +
AE 40 REM + COPYRIGHT (C) 1988 +
CB 50 REM + BY MICROSPARC, INC +
24 60 REM + CONCORD, MA 01742 +
45 70 REM *****
18 80 LOMEM = 25088
A3 90 PRINT CHR$(4)"PR#3"
D8 100 DIM DR$(30),PD$(30):SL = 5:DV = 1
D7 110 REM *** MAIN MENU ARRAY ***
AB 120 M$(1) = "CAT DISK":M$(2) = "CHANGE PREFIX
:M$(3) = "LOAD STANDARD HIRES PICTURE":M$(4) = "VIEW STANDARD HIRES SCREEN":M$(5) = "VIEW SUPER HIRES SCREEN"
16 130 M$(6) = "CONVERT STANDARD TO SUPER":M$(7) = "SAVE SUPER HIRES SCREEN":M$(8) = "QUIT":M$(9) = " "
10 140 REM *** CONVERSION MENU ARRAY ***
F2 150 CV$(1) = "FULL COLOR CONVERSION":CV$(2) = "BLACK AND WHITE":CV$(3) = "GREEN MONOCHROME":CV$(4) = "AMBER MONOCHROME":CV$(5) = "EXIT BACK TO MAIN":CN = 5
01 160 ONERR GOTO 190
29 170 REM *** GET DISKS NAME ***
07 180 PRINT CHR$(4)"PREFIX/":PRINT CHR$(4)"PREFIX":INPUT PR$:CH = 1:CS = 1:POKE 216,0:GOTO 200
BB 190 POKE 216,0:RT = 4:DS = CHR$(4):GOTO 840
B3 200 HOME : HTAB 28: VTAB 10: PRINT "SUPER HI-RES CONVERTER"
```

LISTING 1: SUPER.CONVERT

```

2D 210 PRINT : HTAB 32: PRINT "BY TOM DORRIS":
HTAB 20: PRINT "COPYRIGHT(C) 1988 BY MICRO
SPARC, INC.":
7F 220 VTAB 15: HTAB 33: PRINT "ONE MOMENT..."
92 230 GOSUB 1410: REM *** POKE IN MACHINE LANG
UAGE ***
45 240 VTAB 15: HTAB 25: PRINT "PRESS RETURN TO C
ONTINUE.....": GET AS
02 250 DS = CHR$(4):MC = 1
52 260 HOME : PRINT : TEXT : POKE 49193,1
9A 270 HTAB 15: VTAB 1: PRINT "SUPER HI-RES CONVE
RTER": HTAB 15: PRINT "Copyright(c) 1988 MI
croSPARC, Inc.": HTAB 15: VTAB 4: PRINT "Us
e arrow keys to enter marker. HTAB 15:
PRINT "Press Return to make selection":
HTAB 15: PRINT "Press Escape to Quit.":
8A 280 IF RIGHT$(PR$(1) < > "/" THEN PR$(1) = PR$(1)
+ "/"
81 290 FOR I = 1 TO MN:DR$(I) = MN$(I): NEXT :DR
= MN
39 300 HTAB 15: VTAB 19: PRINT "PREFIX: "PR$(1)
41 310 CD = MC:MP = 1: GOSUB 1560:MP = 0: REM **
= MENU MAKER ***
7A 320 CH = CD:MC = CD
93 330 IF CH = MN THEN HOME : VTAB 12: PRINT "AR
E YOU SURE YOU WANT TO QUIT? ": POKE - 16
368,0: GET AS: IF AS = "Y" OR AS = "y" THEN
HOME : PRINT DS"PREFIX": END
0F 340 IF CH = MN THEN 260
AA 350 IF CH = 4 THEN HOME : PRINT DS"PR#0":
PRINT CHR$(149): POKE 49232,0: POKE 4923
4,0: POKE 49237,0: POKE 49239,0: GOTO 380:
REM DISPLAY STANDARD HIRES
7E 360 IF CH < > 5 THEN 390
ED 370 POKE 49193,163: REM DISPLAY SUPER HIRES
47 380 GET AS: POKE 49193,1: PRINT DS"PR#3": TEXT
: GOTO 260
05 390 IF CH < > 7 THEN 590
2B 400 REM *** SAVE SUPER HIRES SCREEN ***
0C 410 HOME : ONERR GOTO 430
85 420 PRINT DS"PREFIX"PR$(1): POKE 216,0: GOTO 440
75 430 POKE 216,0:RT = 3: GOTO 850
64 440 HOME
2B 450 HTAB 15: VTAB 5: PRINT "Enter the name you
would like to save": HTAB 15: PRINT "The p
icture as ": HTAB 15: VTAB 9: PRINT "-->"PR
$(1): CHR$(29):
10 460 HTAB 18 + LEN (PR$(1)): VTAB 9: INPUT "":AS:
IF NOT LEN (AS) THEN 260
F8 470 NF = 1: FOR I = 1 TO LEN (AS):J = ASC (
MID$(AS,I,1))
0E 480 NF = ((J > 64 AND J < 91) OR (J = 46) OR (J
> 47 AND J < 58 AND I > 1)): AND NF = 1:
NEXT
54 490 IF LEFT$(AS,1) = "." OR LEN (AS) > 15 O
R NF = 0 THEN HTAB 15: VTAB 11: PRINT "Inv
alid ProDOS filename.": HTAB 15: PRINT "Pr
ess Return to continue.": POKE - 16368,0:
GET AS: VTAB 10: PRINT : PRINT CHR$(29):
PRINT CHR$(29): GOTO 450
9D 500 POKE 49193,163
23 510 ONERR GOTO 580
44 520 FOR I = 1 TO 4
2D 530 POKE 771,0: POKE 772,1 = 32: POKE 773,225
C6 540 POKE 775,0: POKE 776,64: POKE 777,0: POKE
791,(I + 1) = 32
28 550 CALL 768: REM *** LOAD NEXT PICTURE SEGM
ENT INTO MAIN MEMORY ***
1A 560 PRINT DS"BSAVE "AS",AS4000,LS2000,B"(I - 1)
= 8192
98 570 NEXT : POKE 49193,1: GOTO 260
D1 580 POKE 49193,1: HOME : HTAB 15: VTAB 7: PRIN
T "Disk error!": PRINT : HTAB 15: PRINT "Pr
ess Return to continue": GET AS: GOTO 260
25 590 IF CH < > 6 THEN 750
30 600 REM *** CONVERT STANDARD TO SUPER HIRES
***
9C 610 HOME : HTAB 15: VTAB 5: PRINT "Choose the
desired conversion method.":
79 620 FOR I = 1 TO CN:DR$(I) = CV$(I): NEXT :DR
= CN
FA 630 GOSUB 1550: REM *** MENU MAKER ***
47 640 IF CD = CN THEN 260
54 650 POKE 230,64
2C 660 POKE 2456,165: POKE 24657,233: POKE 24658
,5: POKE 24659,234: POKE 24660,240: POKE 24
661,22: POKE 24662,32: POKE 24663,19: REM
DEFAULT TO COLOR CONVERSION
87 670 IF CD = 1 THEN 720
1C 680 POKE 24656,169: POKE 24657,0: POKE 24658,3
2: POKE 24659,184: POKE 24660,96: POKE 2466
1,76: POKE 24662,216: POKE 24663,96: REM
CHANGE TO BLACK & WHITE
FC 690 IF CD = 2 THEN 720
F1 700 IF CD = 3 THEN POKE 24657,2: GOTO 720: RE
M CHANGE TO GREEN
93 710 IF CD = 4 THEN POKE 24657,4: REM CHANGE
TO AMBER (RED)
D9 720 HOME : POKE 49193,163
C5 730 CALL 24576
0A 740 GET AS: POKE 49193,1: GOTO 610
10 750 IF CH > 1 THEN 810
80 760 REM *** CATALOG WITH PREFIX ***
FA 770 HOME : ONERR GOTO 800
FA 780 PRINT DS"CATALOG"PR$(1)
18 790 POKE 216,0: PRINT : PRINT "Press Return t
o continue.": GET AS: GOTO 260
CC 800 PRINT "PRINT ERROR!": GOTO 790
2C 810 IF CH > 2 THEN 1210
80 820 REM *** CHANGE PREFIX ***
EF 830 RT = 1
F0 840 ONERR GOTO 980
FE 850 HOME
ED 860 HTAB 10: VTAB 7: PRINT "Select data disk d
rive":
85 870 HTAB 10: VTAB 10: PRINT "Slot: "SL"
Drive: "DV
15 880 IF RT < > 4 THEN HTAB 27: VTAB 15: PRINT
"Press ESC to return to menu"
68 890 HTAB 16: VTAB 10: GET AS: IF AS < > CHR$(
13) AND AS < > CHR$(27) AND (AS < "1"
OR AS > "7") THEN 890
11 900 IF AS = CHR$(27) AND RT < > 4 THEN 260
8F 910 IF AS = CHR$(27) THEN 890
0D 920 IF VAL (AS) THEN SL = VAL (AS): HTAB 16:
VTAB 10: PRINT SL: GOTO 890
A1 930 HTAB 16: VTAB 10: NORMAL : PRINT SL: HTAB
34: VTAB 10: GET AS: IF AS < > CHR$(13)
AND AS < > CHR$(27) AND AS < > "1" AND
AS > "2" THEN 930
EF 940 IF AS = CHR$(27) AND RT < > 4 THEN 260
80 950 IF AS = CHR$(27) THEN 930
95 960 IF VAL (AS) THEN DV = VAL (AS): HTAB 34:
VTAB 10: PRINT DV: GOTO 930
FB 970 PRINT : PRINT DS"PREFIX /": PRINT DS"PREFI
X,S"SL" D"DV": PRINT DS"PREFIX": INPUT PR$(1)
POKE 216,0: GOTO 1000
E9 980 POKE 216,0: HOME : HTAB 10: VTAB 7: PRINT
"/O error": PRINT : IF RT < > 4 THEN HTA
B 10: PRINT "Press Return to return to men
u": GET AS: GOTO 260
8A 990 HTAB 10: PRINT "Press Return to try again
": GET AS: GOTO 850
A1 1000 HOME : PRINT DS"OPEN "PR$(1),TDIR": PRINT D
S"READ "PR$(1)
45 1010 ONERR GOTO 1060
6D 1020 DR = 0
F1 1030 INPUT AS: IF LEN (AS) < 21 THEN 1030
CF 1040 IF MID$(AS,18,3) < > "DIR" THEN 1030
98 1050 DR = DR + 1:DR$(DR) = MID$(AS,2,15): IF
DR < 20 THEN 1030
14 1060 PRINT DS"CLOSE"
A5 1070 IF NOT DR THEN 1160
20 1080 POKE 216,0: HOME : HTAB 15: VTAB 5: PRINT
"Select a subdirectory, or": HTAB 15: PRINT
T "Accept prefix as shown.":
3B 1089 DR = DR + 1:DR$(DR) = ">>>ACCEPT<<<"
43 1090 HTAB 15: VTAB 19: PRINT "PREFIX: "PR$(1)
4C 1100 GOSUB 1550
21 1110 IF CD = DR THEN 1170
C7 1120 FOR I = 15 TO 1 STEP - 1: IF MID$(DR$(C
D),I,1) = "." THEN DR$(CD) = LEFT$(DR$(C
D),I - 1): NEXT I

```

LISTING 1: SUPER.CONVERTER

```

IF 1130 IF RIGHTS (PRS,1) < > "/" THEN PR$ = PR
      $ + "/"
FB 1140 PR$ = PR$ + DR$(CD)
02 1150 A = FRE (0): GOTO 1000
FA 1160 IF RIGHTS (PRS,1) < > "/" THEN PR$ = PR
      $ + "/"
95 1170 IF RT = 1 THEN 260
D9 1180 IF RT = 2 THEN 1210
9A 1190 IF RT = 3 THEN 410
48 1200 IF RT = 4 THEN 160
92 1210 HOME = ONERR GOTO 1240: REM *** LOAD ST
      ANDARD HIRES ***
63 1220 PRINT D$"PREFIX "PR$: IF PR$ = PDS THEN 1
      340
F3 1230 GOTO 1250
C0 1240 POKE 216,0:RT = 2: GOTO 850
3B 1250 PRINT D$"OPEN "PR$,"TDIR": PRINT D$"READ
      "PR$: ONERR GOTO 1300
8C 1260 PD = 0
FC 1270 INPUT AS: IF LEN (AS) < 30 THEN 1270
65 1280 IF VAL ( MID$( AS,26,3)) < > 17 THEN 12
      70
01 1290 PD = PD + 1:PDS(PD) = MID$( AS,2,15): GOT
      O 1270
72 1300 POKE 216,0: PRINT D$"CLOSE": IF PD THEN 1
      340
8E 1310 POKE 216,0
EE 1320 HOME = HTAB 15: VTAB 5: PRINT "There are
      no standard hires pictures": HTAB 15: PRINT
      "in this directory."
D7 1330 PRINT : PRINT "Press Return to continue:
      ": GET AS:A = FRE (0): GOTO 260
41 1340 HOME = HTAB 15: VTAB 5: PRINT "Choose pic
      ture to load:"
44 1350 CD = PD + 1:PDS(CD) = "RETURN TO MAIN": FO
      R I = 1 TO CD:DR$(I) = PDS(I): NEXT :DR = C
      D: GOSUB 1550:PDS = PR$
71 1360 IF CD = DR THEN 260
35 1370 PRINT D$"PR#0"
72 1380 PRINT CHR$( 149): HGR2
25 1390 PRINT D$"BLOAD "PR$:DR$(CD),"A$4000"
2F 1400 GET AS: TEXT : PRINT D$"PR#3": GOTO 260
12 1410 FOR I = 0 TO 26: READ A: POKE 768 + I,A:C
      = C + A: NEXT
8E 1420 IF C < > 3025 THEN HOME : PRINT "DATA S
      TEMENT ERROR": END
55 1430 DATA 162,0,191,0,64,0,159,0,32,225,232
      ,208,245,238,4,3,238,8,3,173,4,3,201,96,208
      ,232,96
80 1440 FOR I = 1 TO 365
7F 1450 READ A: POKE 24575 + I,A: NEXT
47 1460 RETURN
8A 1470 DATA 100,253,100,233,100,234,100,235,1
      69,32,133,254,169,225,133,255,169,255,135,2
      53,230,253,208,248,230,254,165,254,201,157,
      208,240,160,0,169,0,151,253,200,208,249,169
      ,32,133,254,162,10,189,95
C8 1480 DATA 97,159,0,158,225,202,16,246,169,0
      ,143,30,158,225,143,31,158,225,32,50,97,208
      ,8,169,15,32,184,96,76,216,96,165,233,5,234
      ,240,22,32,19,97,32,50,97,240,11,32,30,97,1
      69,0
74 1490 DATA 32,184,96,76,216,96,32,30,97,32,3
      0,97,32,50,97,240,11,32,19,97,160,9,32,184,
      96,76,216,96,100,7,32,19,97,32,50,97,177,38
      ,41,128,240,4,169,2,133,7,165,233,41,1
94 1500 DATA 5,7,26,133,8,32,184,96,32,30,97,3
      2,37,97,32,30,97,32,50,97,168,32,19,97,152,
      240,5,165,8,32,184,96,76,216,96,133,7,10,10
      ,10,10,5,7,133,7,165,233,41,1,170
F2 1510 DATA 189,107,97,37,7,133,7,189,105,97,
      39,253,5,7,135,253,96,32,30,97,32,37,97,165
      ,234,208,3,76,67,96,169,20,141,2,97,165,233
      ,201,24,16,3,76,67,96,240,3,206,2,97,100
96 1520 DATA 233,100,234,230,235,165,253,24,10
      5,20,133,253,144,2,230,254,165,235,201,192,
      240,3,76,67,96,96,198,233,165,233,201,255,2
      08,2,198,234,96,230,233,208,2,230,234,96,16
      5,233,41,1,240,6
05 1530 DATA 230,253,208,2,230,254,96,165,235,
      162,0,160,0,32,17,244,160,0,165,233,166,234,
      240,5,160,36,24,105,4,201,7,144,5,233,7,20
      0,208,247,170,177,38,61,88,97,96,1,2,4,8,16

```

```

3C 1540 DATA 32,64,255,15,15,15,240,0,15,0,0,
      15,240,15,15,240
09 1550 CD = 1
EF 1560 DD = 0:DT = DR: IF DT > 10 THEN DD = DT -
      10:DT = 10
E0 1570 IF NOT MP THEN HTAB 26: VTAB 21: PRINT
      "Press ESC to return to menu"
8C 1580 FOR I = 1 TO DT: HTAB 15: VTAB 7 + I:
      PRINT DR$(I): NEXT
AC 1590 IF DD THEN FOR I = 1 TO DD: HTAB 55: VTA
      B 7 + I: PRINT DR$(10 + I): NEXT
6D 1600 HTAB 15: VTAB 7 + CD - (10 + (CD > 10)):
      IF CD > 10 THEN HTAB 55
0B 1610 INVERSE: PRINT DR$(CD): NORMAL
F2 1620 IF PEEK ( - 16384) < 128 THEN 1620
C1 1630 A = PEEK ( - 16384) - 128: POKE - 16368,
      0: IF A < > 8 AND A < > 10 AND A < > 11
      AND A < > 13 AND A < > 21 AND A < > 27
      THEN 1620
FE 1640 IF A = 27 THEN CD = DR: RETURN
A7 1650 HTAB 15: VTAB 7 + CD - (10 + (CD > 10)):
      IF CD > 10 THEN HTAB 55
D4 1660 PRINT DR$(CD)
43 1670 IF A = 8 OR A = 11 THEN CD = CD - 1 + ((
      D = 1) - DT): GOTO 1600
B6 1680 IF A = 21 OR A = 10 THEN CD = CD + 1 - ((
      CD = DT + DD) + (DT + DD)): GOTO 1600
0C 1690 RETURN

```

TOTAL: 7956

END OF LISTING 1

LISTING 2: SUPER.CONVERTER Source Code

```

1 .....
2 -
3 - ASSEMBLY SOURCE CODE
4 - FOR SUPER CONVERTER
5 - BY TOM DORRIS
6 - COPYRIGHT (C) 1988
7 - BY MICROSPARC, INC.
8 - CONCORD, MA 01742
9 -
10 - MERLIN-16 ASSEMBLER
11 .....
12
13
14 ORG $6000
15 HOCR = $E9
16 VOCR = $EB
17 POS = $F6
18 HPOSN = $F411 CALCS HIRES BASE ADDRESS
19 SLOC = $FD SUPER HIRES POINTER
20 CLBBYT = $7
21 TRASH = $8
22
23 XC
24 XC
25
26 - SET UP VARIABLES
27
28 STZ SLOC
29 STZ HOCR
30 STZ HOCR+1
31 STZ VOCR
32 LDA #120
33 STA SLOC+1
34 LDA #81
35 STA SLOC+2
36
37 - CLEAR SCREEN
38
39 MORE LDA #SFF
40 STA [SLOC]
41 INC SLOC
42 BNE MORE
43 INC SLOC+1
44 LDA #SDF
45 CMP #S9D
46 BNE MORE
47

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```

48 + CLEAR SCBS
49
50 LDY #0
51 MJK LDA #0
52 STA [SLOC],Y
53 INY
54 BNE MJK
55 LDA #520
56 STA SLOC+1
57
58 + MOVE IN COLOR PALETTE
59
60
61 MRCLR LDX #10
62 LDA CLRTBL,X
63 STAL SE19E00,X
64 DEX
65 BPL MRCLR
66 LDA #0
67 STAL SE19E1E
68 STAL SE19E1F
69
70 +-----+
71 + BEGIN CONVERSION
72 +-----+
73 AGAIN JSR HSCRN CHECK PIXEL
74 BNE CHKQ IS IT ON?
75 LDA #50F NO, PLOT BLACK
76 JSR PLT
77 JMP AFTER
78 CHKQ LDA HCROR
79 ORA HCROR+1 IS IT LEFTMOST PIXEL?
80 BEQ SKTH YES, DON'T CHECK LEFT
81 JSR DCPDS
82 JSR HSCRN IS PIXEL TO LEFT ON?
83 BEQ SKPBK
84 JSR INPOS YES, PLOT AS WHITE
85 LDA #0
86 JSR PLT
87 JMP AFTER
88 SKPBK JSR INPOS MOVE BACK TO PIXEL
89 SKTH JSR INPOS MOVE RIGHT ONE PIXEL
90 JSR HSCRN
91 BEQ CLR IS PIXEL TO RIGHT ON?
92 JSR DCPDS YES, PLOT AS WHITE
93 LDA #0
94 JSR PLT
95 JMP AFTER
96 CLR STZ CLRBYT NO, FIGURE PIXEL COLOR
97 JSR DCPDS
98 JSR HSCRN
99 LDA (POS),Y IS HI-BIT SET?
100 AND #580
101 BEQ NTHGH NO, GO ON
102 LDA #502 YES, BEGIN WITH COLOR 2
103 STA CLRBYT
104 NTHGH LDA HCROR
105 AND #501 ADD ONE TO COLOR NUMBER
106 ORA CLRBYT IF IN ODD COLUMN
107 INC
108 STA TRASH
109 JSR PLT PLOT ONE PIXEL
110 JSR INPOS
111 JSR CHECK
112 JSR INPOS
113 JSR HSCRN CHECK FOR ADJACENT COLOR
114 TAY
115 JSR DCPDS
116 TYA
117 BEQ SKPLT NONE, DON'T PLOT
118 LDA TRASH YES, MAKE COLOR APPEAR
119 JSR PLT SOLID
120 SKPLT JMP AFTER
121
122 PLT STA CLRBYT
123 ASL
124 ASL
125 ASL
126 ASL
127 ORA CLRBYT SET LEFT AND RIGHT PIXEL
128 STA CLRBYT TO SAME COLOR
129 LDA HCROR
130 AND #501
131 TAX
132 LDA CMASK,X FIND OUT WHICH NIBBLE TO
133 AND CLRBYT STORE COLOR IN
134 STA CLRBYT
135 LDA SMASK,X
136 AND [SLOC] CLEAR PIXEL
137 ORA CLRBYT
138 STA [SLOC] STORE COLOR OF PIXEL
139 RTS
140
141 AFTER JSR INPOS
142 JSR CHECK
143 LDA HCROR+1
144 BNE NTUP

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145 JMP AGAIN
146 NTUP LDA #28
147 STA PNT+1
148 LDA HCROR
149 CMP #24
150 BPL NXLN
151 JMP AGAIN NO, PLOT ANOTHER PIXEL
152 NXLN BEQ SKDC DID LINE END EVENLY?
153 DEC PNT-1 NO, DON'T ADD TOO MUCH
154 SKDC STZ HCROR
155 STZ HCROR+1
156 INC VCROR
157 LDA SLOC
158 CLC
159 PNT ADC #28
160 STA SLOC
161 BCC CHCK
162 INC SLOC+1
163 CHCK LDA VCROR
164 CMP #192
165 BEQ QUIT
166 JMP AGAIN
167 RTS
168
169 DCPDS DEC HCROR
170 LDA HCROR
171 CMP #5FF
172 BNE RTN
173 DEC HCROR+1
174 RTN
175
176 INPOS INC HCROR
177 BNE RTN2
178 INC HCROR+1
179 RTN2
180
181 CHECK LDA HCROR
182 AND #501
183 BEQ RTN3
184 INC SLOC
185 BNE RTN3
186 INC SLOC+1
187 RTN3
188
189 HSCRN LDA VCROR
190 LDX #0
191 LDY #0
192 JSR HPOSN
193 LDY #0
194 LDA HCROR
195 LDX HCROR+1
196 BEQ NTSET
197 LDY #524
198 CLC
199 ADC #504
200 NTSET CMP #507
201 BCC DONE
202 SBC #507
203 INY
204 BNE NTSET
205 DONE TAX
206 LDA (POS),Y
207 AND MASK,X
208 RTS
209
210 + LOOK-UP TABLES
211
212 MASK HEX 01020408102040
213 CLRTBL HEX FF2F0F0FF0000F00000F
214 SMASK HEX F0F0
215 CMASK HEX 0FF0
216

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END OF LISTING 2